

IOWA DEPARTMENT OF NATURAL RESOURCES **PROJECT MANUAL**



WAUBONSIE STATE PARKS BOAT RAMP & SHORELINE ARMORING FREMONT COUNTY, IOWA

“Or Equal” Provision:

Material specified herein by Brand Names and catalog numbers has been chosen to establish a quality level and it is not implied that only that brand is to be used in the Work of this Contract. The Architect will accept any products or material equal or superior to those specified provided that they meet all other specified requirements, subject to approval during the post bid submittal process. We have no provisions for a pre-bid approval process and, due to lack of personnel to handle such process, we will ignore such requests. Feel free to select and bid material you are certain are equal.

PREPARED BY

**IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING BUREAU
502 E. 9TH STREET, WALLACE STATE OFFICE BUILDING
DES MOINES, IOWA 50319-0034**

PROJECT NO. 12-04-36-02

Obtain complete sets of contract documents including Drawings, Specification, bid documents, bidders' list in electronic format at: www.beelineandblue.com

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WAUBONSIE STATE PARK
BOAT RAMP & SHORELINE ARMORING
FREMONT COUNTY, IOWA
PROJECT NO. 12-04-36-02

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United State Environmental Protection Agency
Washington, DC 20460

**Certification Regarding
Debarment, Suspension, and Other Responsibility Matters
EPA Form 5700-49 (11-83)**

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agencies.
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for the commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transaction (Federal, State, or local) terminated for cause or default.

I Understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine up to \$10,000 or imprisonment for up to 5 years, or both.

Type Name & Title of Authorized Representative

Signature of Authorized Representative

Date

? I am unable to certify to the above statements. My explanation is attached.

Instructions

CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
AND OTHER RESPONSIBILITY MATTERS

00310-1

03/05/13

Under Executive Order 12549, an individual or organization debarred or excluded from participation in Federal assistance or benefit programs may not receive any assistance award under a Federal program, of a sub agreement thereunder for \$25,000 or more.

Accordingly, each prospective recipient of an EPA grant, loan, or cooperative agreement and any contract or sub agreement participant thereunder must complete the attached certification or provide an explanation why they cannot. For further details, see 40 CFR 32.510, Participants' responsibilities, in the attached regulation.

Where To Submit

The prospective EPA grant, loan, or cooperative agreement recipient must return the signed certification of explanation with its application to the appropriate EPA Headquarters or Regional office, as required in the application instructions.

A prospective prime contractor must submit a completed certification or explanation to the individual or organization awarding the contract.

Each prospective subcontractor must submit a completed certification or explanation to the prime contractor for the project.

How To Obtain Forms:

EPA includes the certification form, instructions, and a copy of its implementing regulation (40) CFR Part 32) in each application kit. Applicants may reproduce these materials as needed and provide them to their prospective prime contractors, who, in turn may reproduce and provide them to prospective subcontractors.

Additional copies/assistance may be requested from:

Compliance Branch
Grants Administration Division (PM-216F)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460
(Telephone: 202/475-8025)

CERTIFICATION REGARDING DEBARMENT, SUSPENSION,
AND OTHER RESPONSIBILITY MATTERS

00310-2

03/05/13

**EPA Region VII Procedures for Implementation
of 40 CFR Part 33.240**
(Minority Business Enterprise/Women's Business Enterprise)

The following information must be contained in solicitation documents for construction contracts and engineering agreements pursuant to 40 CFR Part 33.240)

Each bidder/offeror must fully comply with the requirements, terms, and conditions of EPA's policy to award a fair share of sub agreements to minority and women's businesses. The bidder/offeror commits itself to taking affirmative steps contained herein. Bidders/offerors will take affirmative steps prior to submission of bid/proposal.

Affirmative Steps

- A. When feasible, segmenting total work requirements to permit maximum MBE/WBE participation.
- B. Assuring that MBEs and WBEs are solicited whenever they are potential sources of goods or services. This step may include:
 - 1. Sending letters or making other personal contacts with MBEs and WBEs, (e. g. those whose name appear on lists prepared by EPA or the grantee and other MBE/WBEs known to the bidder/offeror.) MBEs and WBEs should be contacted when other potential subcontractors are contacted, within reasonable time (fifteen days) prior to bid submission or closing date for receipt of initial offers. Those letters or other contacts should communicate the following:
 - a. Specific description of the work to be subcontracted;
 - b. How and where to obtain a copy of the drawings and specifications or other detailed information needed to prepare a detailed price quotation;
 - c. Date the quotation is due to the bidder/offeror;
 - d. Name, address, and phone number of the person in the bidder/offeror's firm whom the prospective MBE/WBE subcontractor should contact for additional information.
 - 2. Sending letters or making other personal contacts with local, state, federal and private agencies and MBE/WBE associations relevant to the project. Such contacts should provide the same information provided in the direct contacts to MBE and WBE firms.
- C. Where feasible, establishing delivery schedules which will encourage participation by MBE and WBEs.

Determination of Compliance

It is to be noted that bidders/offerors must demonstrate compliance with MBE/WBE requirements in order to be deemed responsible. Demonstration of compliance shall include, but is not limited to, the following information:

1. Names, addresses and phone numbers of MBE/WBEs expected to perform the work;
2. Work to be performed by MBEs and WBEs;
3. Aggregate dollar amount of work to be performed by MBEs and WBEs, showing aggregate to MBEs and aggregate to WBEs separately;
4. Description of contacts to MBE and WBE organizations, agencies and associations which serve MBE/WBEs, including names of organizations, agencies and associations and dates of contacts;
5. Description of contacts to MBEs and WBEs, including number of contacts, fields, (i. e. equipment or material supplier, excavator, transport services, electrical subcontractors, plumbers, etc.) and dates of contacts.

All bidders/offerors should complete the Minority and Women's Business Enterprise Utilization Worksheet and submit to the grantee prior to contract award.

(Grantee may establish alternative methods of compliance equivalent to or more stringent than the above.)

MINORITY, WOMEN'S AND SMALL RURAL BUSINESS ENTERPRISE WORKSHEET

Grant Applicant _____
Project No. _____
Contractor/Engineer _____
Address _____
Contact Person: _____ Telephone No. _____
Amount of Contract _____ MBE Percentage _____ WBE Percentage _____

1. MBE _____ Subcontractor _____
WBE _____ Address _____
Contact Person _____ Telephone No. _____
Amount of Subcontract _____
Scope of Work _____

1. MBE _____ Subcontractor _____
WBE _____ Address _____
Contact Person _____ Telephone No. _____
Amount of Subcontract _____
Scope of Work _____

2. MBE _____ Subcontractor _____
WBE _____ Address _____
Contact Person _____ Telephone No. _____
Amount of Subcontract _____
Scope of Work _____

3. MBE _____ Subcontractor _____
WBE _____ Address _____
Contact Person _____ Telephone No. _____
Amount of Subcontract _____
Scope of Work _____

4. MBE_____ Subcontractor_____
WBE_____ Address_____
Contact Person_____ Telephone No._____
Amount of Subcontract_____
Scope of Work_____

5. MBE_____ Subcontractor_____
WBE_____ Address_____
Contact Person_____ Telephone No._____
Amount of Subcontract_____
Scope of Work_____

6. MBE_____ Subcontractor_____
WBE_____ Address_____
Contact Person_____ Telephone No._____
Amount of Subcontract_____
Scope of Work_____

Comments_____

Prepared By Telephone No. Date

**GUIDANCE FOR MINORITY BUSINESS ENTERPRISE
AND WOMEN'S BUSINESS ENTERPRISE REQUIREMENT
OF 40 CFR 31.36(e)**

I. PURPOSE

This guidance is to assist States, EPA assistance recipients, prime contractors, consultants, minority business owners and women's business owners in complying with EPA's Minority Business Enterprise (MBE) and Women's Business Enterprise (WBE) requirements in the Agency's procurement regulations, 40 CFR Part 31. This guidance provides suggestions for carrying out the affirmative steps included in EPA procurement regulations. Also included is a description of activities to be undertaken by EPA or delegated States, as well as suggestions for MBE/WBEs to take in pursuing opportunities for work in EPA-funded projects.

II. DEFINITIONS

- A. Minority Business Enterprise (MBE): A minority business enterprise is a business which is
1. certified as socially and economically disadvantaged by the Small Business Administration;
 2. certified as a minority business enterprise by a State or Federal agency; or
 3. an independent business concern which is at least 51 percent owned and controlled (as defined below) by minority group member(s). A minority group member is an individual who is a citizen of the United States and one of the following:
 - a. Black American
 - b. Hispanic American (with origins from Puerto Rico, Mexico, Cuba, South or Central America)
 - c. Native American (American Indian, Eskimo, Aleut, native Hawaiian)
 - d. Asian-Pacific American (with origins from Japan, China, the Philippines, Vietnam, Korea, Samoa, Guam, the U.S. Trust Territories of the Pacific, Northern Marianas, Laos, Cambodia, Taiwan or the Indian Subcontinent)
- B. Women's Business Enterprise (WBE): A women's business enterprise is a business which is certified as such by a State or Federal agency, or which meets the following definition:

A women's business enterprise enterprise is an independent business concern which is at least 51 percent owned by a woman or women who also control and operate it. Determination of whether a business is a least 51 percent owned by a woman or women shall be made without regard to community property laws. For example, an otherwise qualified WBE which is 51 percent owned by a married woman in a community state will not be disqualified because her husband has a 50 percent interest in her share. Similarly, a business that is 51 percent owned by a married man

and 49 percent owned by an unmarried woman will not become a qualified WBE by virtue of his wife's 50 percent interest in his share of the business.

C. Ownership and Control:

1. The minority of women's ownership's interest in the firm must be real, substantial and continuing. Such interest may include:
 - a. risk of loss/share of profit commensurate with the proportional ownership; and
 - b. receipt of the customary incidents of ownership, such as salary and/or intangible benefits.
2. A minority or woman owner must have and exercise the authority to independently control the business. The minority or woman owner need not be continually present to be deemed in control. Characteristics of control may include:
 - a. authority to sign contacts;
 - b. making decisions in price negotiations;
 - c. incurring liabilities for the firm;
 - d. making final staffing decisions;
 - e. policy-making; and
 - f. making general company management decisions.
3. Only those firms performing a useful business function according to custom and practice in the industry are qualified as MBEs or WBEs. Acting merely as a passive conduit of funds to some other, non-minority firm where such activity is unnecessary to accomplish the project the project does not constitute a "useful business function according to custom and practice in the industry."

D. Recipient: A party receiving federal financial assistance under an EPA program pursuant to a grant or cooperative agreement.

E. Project: The scope of work from which a cooperative agreement, grant or grant amendment is awarded.

H. Bidder: A party seeking to obtain a contract with a recipient through a competitive, advertised, sealed bid process.

I. Offeror: A party seeking to obtain a contract with a recipient through a negotiated procurement process.

IV. RESPONSIBILITIES

A. Headquarters.

1. The office in charge of the assistance program (program office) has primary responsibility for implementation of the MBE/WBE program, in cooperation with the Office of Small and Disadvantaged Business Utilization (OSDBU).
2. OSDBU is responsible for serving as the Agency focal point for inquiries on the MBE/WBE program, providing explanation of the program and guidance to MBEs and WBEs interested in working on EPA funded projects.

B. Regional Responsibilities.

1. Provide guidance and advice to recipients as requested.
2. Maintain lists of those MBE and WBE firms which have participated in EPA funded projects. The Region may also add MBEs and WBEs requesting to be included on source lists. Such lists are for information purposes only, and shall carry a clear and prominent statement that the firms listed are neither endorsed nor guaranteed by EPA as bona fide MBE/WBEs. It is not necessary to be on any list in order to qualify as a bona fide MBE/WBE.
3. Monitor recipients for compliance with MBE/WBE requirements and for determining levels of MBE/WBE participation.

V. RECIPIENT RESPONSIBILITIES

A. The recipient shall take affirmative steps to contract with MBEs and WBEs and ensure that its contractors and consultants take affirmative steps to contract with MBEs and WBEs during all phases of work funded or to be funded under an EPA assistance agreement. The recipient's affirmative steps as defined in EPA procurement regulations are the following:

1. When feasible, dividing the total work to be contracted into smaller tasks in the solicitation documents to permit maximum MBE/WBE participation.
2. Placing qualified MBEs and WBEs on solicitation lists of EPA Regional Offices and appropriate minority/women's business associations and agencies.
3. Assuring that MBEs and WBEs are solicited whenever they are potential sources of service and supplies, for example, by:
 - a. Holding pre-bid conferences, with interested MBEs and WBEs in attendance when possible, to highlight the requirements of this program to prospective bidders;
 - b. Including this MBE/WBE interim guidance in requests for proposals (RFP) and invitations for bid (IFB);

- c. Publishing announcements of MBE/WBE opportunities for work on EPA funded projects;
 - d. Developing a source list of MBE/WBEs and providing its list to prospective bidders/offerors;
 - 1. The recipient may wish to engage a MBE/WBE liaison to compile the list.
 - 2. The recipient may wish to use available lists such as those of the EPA Regional Office, adjacent municipalities, appropriate minority/women associations. Names of these agencies with address and phone number should also be included on the recipient's source list.
 - e. Providing necessary and appropriate liaison services between MBE/ WBEs and prospective bidders/offerors. (Liaison service should not be delegated to consultants where a potential for conflict of interest exists.)
- 4. When project requirements permit, establishing delivery schedules which encourage participation of MBE/WBEs.
 - 5. Using the services and assistance of the Small Business Administration (SBA), the Minority Business Development Agency (MBDA), and other federal, State and local agencies when appropriate.
- B. Unless otherwise provided in the specifications, compliance with the MBE/WBE requirement in the regulations is a matter of bidder/offeror responsibility.
 - C. The recipient is responsible for monitoring work in progress to ensure that MBE and WBE subcontractors and joint venturers are actually participating in the performance of the subcontract or joint venture contract and to insure that the consultant/contractor is fulfilling its obligations with respect to MBE/WBE requirements under the contract.
 - D. As part of the documentation required under 40 CFR 31.36(b)(9), the recipient shall maintain and update records of MBE/WBE participation and supply data to the delegated State when requested. Such records may include:
 - 1. Name of MBE/WBEs being utilized;
 - 2. Work designated to be performed by MBE/WBE;
 - 3. Dollar value of that work;
 - 4. Portion of project being performed by MBEs and WBEs.

VI. BIDDER AND OFFEROR RESPONSIBILITIES

- A. Affirmative Steps: Activities during preparation of bids and offers. Bidders/offerors shall take affirmative steps in compliance with the regulations, prior to submission of bids or

closing date for receipt of initial offers, to encourage participation in projects by MBEs and WBEs. Such efforts include:

1. When feasible, segmenting total work requirements to permit maximum MBE/WBE participation.
 2. Assuring the MBEs and WBEs are solicited whenever they are potential sources of goods or services. This step may include:
 - a. Sending letters or making other personal contacts with MBEs and WBEs, (e.g. those whose names appear on lists prepared by EPA or the recipient and other MBE/WBEs known to the bidder/offeror). MBEs and WBEs should be contacted when other potential subcontractors are contacted, within reasonable time prior to bid submission or closing date for receipt of initial offers. Those letters or other contacts should communicate the following:
 1. Specific description of the work to be subcontracted;
 2. How and where to obtain a copy of plans and specifications or other detailed information needed to prepare a detailed price quotation;
 3. Date the quotation is due the bidder/offeror;
 4. Name, address, and phone number of the person in the bidder/offeror's firm whom the prospective MBE/WBE subcontractor should contact for additional information.
 - b. Sending letters or making other personal contacts with local, State, federal and private agencies and MBE/WBE associations relevant to the project. Such contacts should provide the same information provided in the direct contacts to MBE/WBE firms.
 3. Where feasible, establishing delivery schedules which will encourage participation by MBEs and WBEs.
- B. Bidders/offerors must demonstrate compliance with the MBE/WBE requirements in order to be deemed responsible. Demonstration of compliance may include the following information, however the recipient may specify other methods of demonstrating compliance:
1. Names, addresses and phone numbers of MBE/WBEs expected to perform work.
 2. Work to be performed by the MBEs and WBEs.
 3. Aggregate dollar amount of work to be performed by MBEs and WBEs, showing aggregate to MBEs and aggregate to WBEs separately.
 4. Description of contacts to MBE and WBE organizations, agencies and associations which service MBEs/WBEs, including names of organizations, agencies and associations and dates of contact.

5. Description of contacts to MBEs and WBEs, including number of contacts, fields, (i.e. equipment or material supplier, excavators, transport serviced, electrical subcontractors, plumbers, etc.) and dates of contacts.
- C. Successful bidders/offerors should take reasonable affirmative steps to subcontract with MBEs and WBEs whenever additional subcontracting opportunities arise during the performance of the contract.

VII. MBE AND WBE RESPONSIBILITIES

MBEs and WBEs are responsible for promoting themselves and taking the initiative to obtain contracts and subcontracts, and for encouraging joint venture arrangements. MBEs/WBEs interested in working on EPA funded projects are strongly encouraged to take the following steps:

- A. Submit information to the recipients to identify status as a MBE/WBE.
- B. Become certified as MBE/WBE under available State or federal agency procedures.
- C. Contact federal, State, and local MBE/WBE liaison offices to obtain information on potential jobs.
- D. Provide capability statements to State agencies, recipients, consulting engineers, and contractors, stating type(s) of work performed by the firm, size of job that the firm can handle, bonding information, and any special skills.
- E. Make every effort to establish contacts and relationships with contractors for potential future business, including attending pre-bid conferences and subscribing to industry and trade journals.
- F. Contact EPA Regional offices or appropriate State offices to obtain information on planned EPA funded projects.
- G. Respond promptly to solicitation requests.

VIII. REMEDIES FOR NONCOMPLIANCE

- A. Protests. A bidder/offeror for EPA funded work or MBE/WBE with an adversely affected direct financial interest may file a bid protest with the recipient pursuant to EPA procurement regulations 40 CFR 31.36(b)(12). These procedures are available to protest alleged violation of federal MBE/WBE requirements and may not be used to enforce local or State MBE/WBE requirements.
- B. Upon a finding by EPA that a recipient, bidder/offeror, consultant, contractor or subcontractor has not complied with the MBE/WBE requirements of EPA regulations, EPA may invoke any and all sanctions and remedies specified in EPA regulations.

IX. STATE OR LOCAL LAW

Nothing in this program prevents a State or recipient from applying more stringent MBE/WBE requirements or procurement obligations which pertain to bid responsiveness or percentage of MBE and WBE participation.

**U.S. ENVIRONMENTAL PROTECTION AGENCY
CERTIFICATION OF NONSEGREGATED FACILITIES**

(Applicable to contracts, subcontracts, and agreements with the applicants who are themselves performing Federally assisted construction contracts, exceeding \$10,000, which are not exempt from the provisions of the Equal Opportunity Clause.)

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have submitted identical certifications for specific time periods):

**NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR
CERTIFICATION OF NONSEGREGATED FACILITIES**

A Certification of Non-segregated Facilities, as required by the May 9, 1967 order (33 F.R. 7808, May 28, 1968) on Elimination of Segregated Facilities, by the Secretary of Labor, must be submitted prior to the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

Signature

Date

Name and Title of Signer (Please Type)

NOTE:

The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001

EPA-7 5720-4.2 (6/2/77)

Recipient Certification - Anti-Lobbying Act of 1990

**U.S. Department of the Interior
Certification Regarding Lobbying**

This certification is required by Section 1352, title 31, U.S. Code, entitled "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions."

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)

Certification for Contracts, Grants, Loans, and Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to person for influencing or attempting to influence an officer or employee of any agency, a Member Congress, and officer or employee of Congress, or an employee of a Member of Congress in with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U .S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Signature _____

Date _____

CERTIFICATION REGARDING LOBBYING
00340-1

1/24/2013

Instructions for Certification

1. This certification and a disclosure form should be filed by each person as required, with each submission that initiates agency consideration of such person for: (1) award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 or (2) an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$ 150,000.
2. This certification and a disclosure form should be filed by each person as required, upon receipt by such person of (1) a Federal contract, grant, or cooperative agreement exceeding \$100,000; or (2) a loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000, unless such person previously filed a certification, and a disclosure form, if required, at the time agency consideration was initiated.
3. Any person who requests or receives from a person referred to in paragraphs (1) and (2) above: (1) a subcontract exceeding \$100,000 at any tier under a Federal contract; (2) a subgrant, contract, or subcontract exceeding \$100,000 at any tier under a Federal grant (3) a contract or subcontract exceeding \$100,000 at any tier under a Federal loan exceeding \$150,000; or, (4) a contract or subcontract exceeding \$100,000 at any tier under a Federal cooperative agreement, shall file a certification, and a disclosure form, as required, to the next tier above.
4. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in paragraphs (1) or (2) above. That Person shall forward all disclosure forms to the appropriate Bureau/Office within the Department of the Interior.
5. Any certification or disclosure form filed under paragraph (4) above shall be treated as a material representation of fact upon which all receiving tiers shall rely. All liability arising from an erroneous representation shall be borne solely by the tier filing that representation and shall not be shared by any tier to which the erroneous representation is forwarded. Submitting an erroneous or disclosure constitutes a failure to file the required certification or disclosure, respectively. If a person fails to file a required certification or disclosure, the United States may pursue all available remedies, including those authorized by Section 1352, title 31. U.S. Code.

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subwardee or prime federal recipient, at the initiation or receipt of a covered federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with a covered federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered federal action.
2. Identify the status of the covered federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered federal action.
4. Enter the full name, address, city, state and zip code of the reporting entity. Include congressional district, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subwardee (e.g., the first subwardee of the prime is the first tier). Subawards include, but are not limited to, subcontracts, subgrants and contract awards under grants.
5. If the organization filling the report in Item 4 checks "Subwardee," then enter the full name, address, city, state and zip code of the prime federal recipient. Include congressional district, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the federal program name or description for the covered federal action (Item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate federal identifying number available for the federal action identified in Item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant or loan award number; the application/proposal control number assigned by the federal agency). Include prefixes (e.g., "RFP-DE-90-001").
9. For a covered federal action where there has been an award or loan commitment by the federal agency, enter the federal amount of the award/loan commitment for the prime entity identified in Item 4 or 5.
10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in Item 4 to influence the covered federal action.

(b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter last name, first name and middle initial (MI).
11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (Item 4) to the lobbying entity (Item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify name.
14. Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with federal officials. Identify the federal official(s) or employee(s) contacted or the officer(s), employee(s), or member(s) of Congress that were contacted.
15. Check whether or not a SF-LLL-A Continuation Sheet(s) is/are attached.
16. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

Public reporting burden for this collection of information is estimated to average 30 minutes per response. Including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project, (0348-0045), Washington, D.C. 20503

(See reverse for public burden disclosure)

1. Type of Federal Action: <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance		2. Status of Federal Action: <input type="checkbox"/> a. Bid/Offer/Application <input type="checkbox"/> b. Initial Award <input type="checkbox"/> c. Post-award		3. Report Type: <input type="checkbox"/> a. Initial/Filing <input type="checkbox"/> b. material change For Material Change Only: year _____ quarter _____ date of last report _____	
4. Name and Address of Reporting Entity: <input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if known Congressional District, if known			5. If Reporting Entity in No. 4 is Subawardee, enter name and Address of Prime: Congressional District, if known		
6. Federal Department/Agency:			7. Federal Program Name/Description: CFDA Number, if applicable _____		
8. Federal Action Number, if known:			9. Award Amount, if known: \$		
10. a. Name and Address of Lobbying Entity: (if individual, last name, first name, MI) (Attach Continuation Sheet(s))			b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI) SF-LLL-A if Necessary)		
11. Amount of Payment (check all that apply): \$ _____ <input type="checkbox"/> actual <input type="checkbox"/> planned			13. Type of Payment (check all that apply): <input type="checkbox"/> a. retainer <input type="checkbox"/> b. one-time fee <input type="checkbox"/> c. commission <input type="checkbox"/> d. contingent fee <input type="checkbox"/> e. deferred <input type="checkbox"/> f. other; specify: _____		
12. Form of Payment (check all that apply): <input type="checkbox"/> a. cash <input type="checkbox"/> b. in-kind; specify: nature _____ value _____					
14. Brief Description of Services Performed or to be performed and Date(s) of Service, including officer(s), employee(s), or Member(s) contracted, for Payment indicated in item 11: (Attach Continuation Sheet(s) SF-LLL-A if Necessary)					
15. Continuation Sheet(s) SF-LLL-A attached: <input type="checkbox"/> Yes <input type="checkbox"/> No					
16: The information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of facts upon which evidence was placed by the above when this transaction was made or started into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the congress semi-annually and will be available for public inspection. Any person which fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.			Signature : _____ Print Name: _____ _____ Title:		
For Federal Use Only:				Authorized for local reproduction Standard Form-LLL	

DISCLOSURE OF LOBBYING ACTIVITIES

00350-2

1/14/2013

Telephone No.: _____ Date: _____

DISCLOSURE OF LOBBYING ACTIVITIES
CONTINUATION SHEET

Approved By OMB
0348-0046

Reporting Entity: _____ Page _____ of _____

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Standard Form LLL-A

NONDISCRIMINATION IN EMPLOYMENT
(Instructions for Bidders)

By the submission of its bid, each bidder acknowledges that he understands and agrees to be bound by the equal opportunity requirements of EPA regulations (40 CFR Part 8, particularly Section 8.4(b)), which shall be applicable throughout the performance of work under any contract awarded pursuant to this solicitation. Each bidder agrees that if awarded a contract, it will similarly bind contractually each subcontractor. In implementation of the foregoing policies, each bidder further understands and agrees that if awarded a contract, it must engage in affirmative action directed at promoting and ensuring equal employment opportunity in the workforce used under the contract (and that it must require contractually the same effort of all subcontractors whose subcontracts exceed \$ 10,000). The bidder understands and agrees that "affirmative action" as used herein Shall constitute a good faith effort to achieve and maintain that amount of minority employment in the on-site workforce used on the project which corresponds, for each trade used, to the minority population in the serving labor market area from which workers are reasonably available for hire for the project.

(7/75)

PERFORMANCE BOND

STATE OF IOWA
DEPARTMENT OF NATURAL RESOURCES

KNOW ALL MEN BY THESE PRESENTS:

That we, _____
of _____ as PRINCIPAL,
and _____
of _____ as SURETY(S),
are hereby held and firmly bound unto the state of Iowa in the penal sum of:

_____ Dollars \$ _____
for the payment, whereof, the said PRINCIPAL and SURETY(S) bind themselves, their heirs, executors, administrators, successors
and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that whereas the PRINCIPAL entered a certain contract, hereto attached, and made part,
hereof to the state of Iowa, acting by and through the Iowa Department of Natural Resources, hereinafter called the DEPARTMENT,
dated _____ for the _____
at _____ in _____ County, Iowa.

NOW THEREFORE,

the conditions of this obligation are such that, if the DEPARTMENT, shall faithfully perform the contract in accordance with the plans,
specifications and contract documents, and shall fully indemnify and save harmless the state of Iowa from all cost and damage which
the state of Iowa may suffer by reason of the PRINCIPAL's default or failure to do so and shall fully reimburse and repay the state of
Iowa all outlay and expenses which the state of Iowa may incur in making good any such default, then this obligation shall be null and
void, otherwise it shall remain in force and effect.

In the event that the PRINCIPAL is in default under this contract as defined herein, the DEPARTMENT shall by written notice inform
the PRINCIPAL that this contract is in default. And may, at its option, without process or action at law:

1. Take over all or any portion of the work and complete it either by day labor or reletting the work. The DEPARTMENT may
retain all material, equipment and tools on the work, at a rental which it considers reasonable, until the work has been
completed.
2. Allow the surety to take over the work within fifteen (15) days and assume completion of said contract and become entitled to
the balance of the contract price.
3. Allow the PRINCIPAL to complete the contract.

As required by Chapter of the Code of Iowa.

1. The PRINCIPAL SURETY(S) on this bond hereby agree to pay all persons, firms or corporations having contracts directly
with the PRINCIPAL or with subcontractors, all just claims due them for labor performed or material furnished, in the
performance of the contract on account of which this bond is given, when the same are not satisfied out of the portion of the
contract price shall have been established as provided by law.
2. Every Surety on this bond shall be deemed and held, any contract to the contrary notwithstanding, to consent without notices:
 - a. To any extension of time to the contractor in which to perform the contract.
 - b. To any change in the plans, specifications, or contract, when such changes does not involve an increase of more than 20
percent of the total contract price, and then only as to such excess increase.
 - c. That no provision of this bond or any other contract shall be valid which limits less than one year from the time of the
acceptance of the work, the right to sue on this bond for defect in workmanship or material not discovered or known to the
DEPARTMENT at the time such work was accepted.

PERFORMANCE BOND
00610-1

2/6/2012

No provision of this bond or any other contract shall be valid which limits to less than five years after the acceptance of the work, the right to sue on this bond for defects in workmanship or material in connection with paving or concrete work.

IN WITNESS WHEREOF,

the above bounden parties have executed this instrument under their several seals this _____ day of _____, 20_____, the name and corporate seal of each party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

PRINCIPAL:

By _____

SURETY:

By _____

If a partnership all partners must sign.

This bond approved by the Iowa Department of Natural Resources this _____ day of _____, 20 _____

By _____

Director

SECTION 00710

(Revised 9/8/95)

SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES

Notice of Requirements for Affirmative Action to ensure Equal Employment Opportunity (Executive Order 11246 as amended) and Iowa Executive Orders 15 and 34. This includes employment goals for minorities and women in construction.

60-1.4 EQUAL OPPORTUNITY CLAUSE.

A. Federally assisted construction contracts.

1. Except as otherwise provided, each administering agency shall require the inclusion of the following language as a condition of any grant, contract, loan, insurance, or guarantee involving federally assisted construction which is not exempt from the requirements of the equal opportunity clause.

B. The applicant hereby agrees that it will Incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government or borrowed on the credit of the Federal Government pursuant to a grant, contract, loan insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loans insurance, or guarantee, the following equal opportunity clause:

C. During the performance of this contracts the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee, or applicant for employment because of race, colors, religion, sex, national origin, or disability.
 - a. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following; Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.
 - b. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
2. The Contractor will in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, national origin, or disability.
3. The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
4. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
5. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor or as otherwise provided by law.
7. The Contractor will include the portion of the sentence immediately preceding paragraph 1. and the provisions of paragraphs 1. through 7. in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor.
 - a. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.
 - b. Provided, however, that in the event a Contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

I. DEFINITIONS.

A. Definitions as used in these specifications:

1. **Covered Area** means the entire State of Iowa, however, those areas of a Hometown Plan approved by the U.S. Department of Labor will be considered separately.
2. **Director** means Director, Office of Federal Contract Compliance Program, United States Department of Labor or any person to whom the Director delegates authority.
3. **Employer Identification Number** means the Federal Social Security Number used on the Employer's Quarterly Federal Tax Returns U.S. Treasury Department Form 941.
4. **Designated Geographical Areas.**
 - a. **Standard Metropolitan Statistical Area (SMSA).** These areas represent a reasoned judgement as to how metropolitan areas are defined statistically in a uniform manner, using data items that are:
 - (1) widely recognized as indicative of metropolitan character, (population, urban character, nonagricultural employment, population, density, and commuting ties), and
 - (2) available from a body of Federal statistics which has been uniformly and simultaneously collected in all parts of the country, and processed and tabulated according to consistent standards. Thus, if a project is located within an SMSA, it can be concluded that a reasonable commuting area exists within the SMSA, and that goals based on SMSA statistics are accurate.
 - b. **Economic Area (EA).** These areas are viewed as centers of commerce, and they generally cover areas which include the places of work and residence for most workers. There are 183 such areas, defined along county lines, covering the entire country. Counties were assigned to these economic areas in accordance with commuting patterns based primarily on data gathered by the Bureau of the Census.
5. **Minority** includes:
 - a. **Black** (all persons having origins in any of the Black African racial groups not of Hispanic origin);

- b. Hispanic** (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish Culture or origin, regardless of race),
- c. Asian and Pacific Islander** (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands), and
- d. American Indian or Alaskan Native** (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(Note: Minority women from the above referenced groups shall be counted as satisfying both the minority and female employment goals in each geographic area.)

II. GENERAL.

- A.** Equal Employment Opportunity requirements not to discriminate and to take affirmative action to assure equal employment opportunity as required by Executive Order 11246 and Executive Order 11375. The requirements set forth in this specification shall constitute the specific affirmative action requirements for project activities under this contract and supplement the equal employment opportunity requirements set forth in the Required Contract Provisions.

III. EQUAL OPPORTUNITY POLICY.

- A.** The Contractor will accept as his/her operating policy the following statement which is designed to farther the provision of equal employment opportunity to all persons without regard to their age, race, color, religion, sex, national origin, or disability, and to promote the full realization of equal employment opportunity through a positive, continuing program.

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their age, race, religion, sex, color, national origin, or disability. Such action shall include: employment, upgrading, demotion, and transfer, recruitment and recruitment advertising, layoff, and termination, rates of pay and other forms of compensation, and selection of training, including apprenticeship, preapprenticeship, and/or on-the-job training."

IV. GOALS.

- A.** Specific goals for female and minority participation have been established.
- B.** The goals for female participation, expressed in percentage terms for the total hours worked by the Contractor's aggregate workforce in each trade on all construction work, is 6.9 percent, with no timetable. This goal applies nationwide.
 - 1.** Goals for minority participation in Iowa, expressed in percentage terms for the total hours worked by the Contractor's aggregate workforce in each trade on all construction work, are shown on the map of Iowa that follows. The goals shown apply to each designated geographical area, as shown on the map.
- C.** These goals are applicable to all the Contractor's construction work (whether or not it is non-Federal or Federally assisted) performed in the designated area. For each contract and/or subcontract in excess of \$10,000, the goals for minority participation will apply for all work to be performed in geographical areas designated by the Director pursuant to 41 CFR 60-4.6, and the goal for female participation will apply nationwide.
 - 1.** The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on his/her implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and his/her efforts to meet the goals established

for minority participation for the geographical area where the work is to be performed, or nationwide goal for female participation.

2. The hours of minority and female employment and training must be substantially uniform throughout the time period for the work of the contracts and within each trade, and the Contractor shall make a good-faith effort to employ minorities and women evenly on each of his/her projects.
3. The transfer of minority or female employees or trainees from contractor to contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Orders and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

D. The Contractor shall provide written notification to the Department of Natural Resources (on behalf of the Director of the Office of Federal Contract Compliance Programs) within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under this contract.

1. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontracts and the geographical area in which the contract work is to be performed.

E. Application of Minority Participation Goals.

1. **Minority Participation.** A single minority participation goal is established for each SMSA and EA. Timetables for the achievement of minority goals are not provided. A separate goal is established for each SMSA and for each EA. When a contract or subcontract to which this specification applies is for work located within a SMSA, the goal for that SMSA applies. When a contract or subcontract to which this specification applies is for work located outside an SMSA, the goal for that EA applies.

- a. The applicable goal for the Contractor or subcontractors is the goal for each geographical area where the work is being performed, and all the work of the Federal or Federally assisted construction contractor or subcontractor is covered, whether the work is being performed for a contract to which the specification applies or not. Therefore, a contractor with work in SMSA "X" would apply the goal for SMSA "X" for that work. The same contractors however, would apply the SMSA "Y" goal to all his/her work in SMSA "Y", even though the Contractor's work in SMSA "Y" is neither Federal nor Federally assisted.

2. **Participation of Minority Women.** The Contractor and required subcontractors will be permitted to count minority women belonging to one of the recognized minority groups listed in Article I of this specification as satisfying both the minority goal for each designated geographic area and the overall female goals. Conversely, nonminority women will only count toward satisfying the overall female goal.

V. STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246).

- A. Whenever the Contractors or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, he/she shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation set forth herein.
- B. If the Contractor is participating (pursuant to 41 CFR 60-4.5) In a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, his/her affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan.

1. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or subcontractor participating in an approved Plan is individually required to comply with his/her obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which he/she has employees.
 2. The overall good faith performance by other Contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.
- C. The Contractor shall implement the specific affirmative action standards provided in paragraphs 6a through p. Article V, of these specifications. The goals set forth in the specifications are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which he/she has employees in the covered area. The Contractor is expected to make substantially uniform progress toward his/her goals in each craft during the period specified.
- D. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
- E. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training program, approved by U.S. Department of Labor.
- F. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluations of the Contractor's compliance with these specifications shall be based upon his/her effort to achieve maximum results from his/her actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
1. Endure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project.
 - a. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of, and carry out, the Contractor's obligations to maintain such a working environments with specific attention to minority or female individuals working at such sites or such facilities.
 2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 3. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization, and of what action was taken with respect to each such individual.
 - a. If such individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
 4. Provide immediate written notification to the Director, when the union or unions with which the Contractor has a collective bargaining agreement, have not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet his/her obligations.

5. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. Training programs may be specifically required elsewhere in the contract documents. The Contractor's responsibility for training opportunities is not necessarily limited to training programs that are specifically required. The Contractor shall provide notice of these programs to the sources compiled under 6b above.
6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting his/her EEO obligations, by including it in any policy manual and collective bargaining agreement, by publicizing it in the company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees, at least once a year, and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions, including specific review of these items with on-site supervisory personnel, such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained, identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to, and discussion the Contractor's EEO policy, with other Contractors and subcontractors with whom the Contractor does or anticipates doing business.
9. Direct the Contractor's recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment sources the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
10. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after schools summer, and vacation employment to minority and female youths both on the site and in other areas of the Contractor's workforce.
11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
12. Conduct, at least annually, an inventory and evaluation, of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
13. Ensure that seniority practices, job classifications, work assignments, and other personnel practices, do not have a discriminatory effect, by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
14. Ensure that all facilities and company activities are nonsegregated, except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

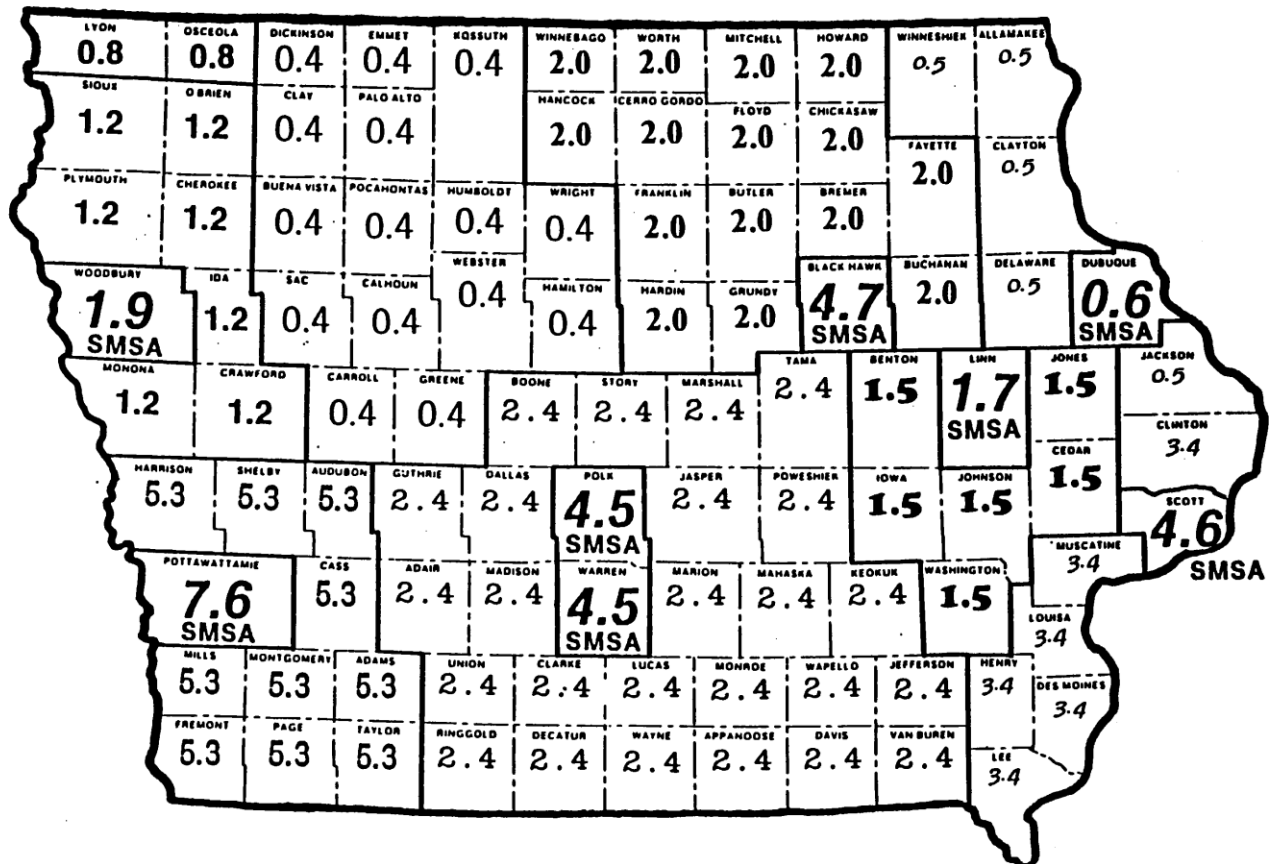
15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractor and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 16. Conduct a reviews at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
- G.** Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (6a through p).
1. The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of the obligations under 6a through p of these specifications, provided the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet his/her individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor.
 2. The obligation to comply, however, is the Contractor's, and failure of such group to fulfill an obligation shall not be a defense for the Contractor's noncompliance
- H.** A single overall goal for women and goals for minorities in each designated area are included in Article IV of these specifications. The Contractor is required to provide equal opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved the goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group or women are underutilized.
- I.** The Contractor shall not use the goal, or affirmative action standards to discriminate against any person because of age, race, color, religion, sex, national origin, or disability.
- J.** The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts, pursuant to Executive Order 11246.
- K.** The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
- L.** The Contractors in fulfilling his/her obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph G of these specifications, so as to achieve maximum results from his/her efforts to endure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
- M.** The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records.
1. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed.

2. Records shall be maintained in an easily understandable and retrievable form, however, to the degree that existing records satisfy this requirement, Contractor shall not be required to maintain separate records.
- N. Nothing herein provided shall be construed as a limitation upon the application of other Iowa which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

VI. SUPPLEMENTAL REPORTING REQUIREMENTS.

- A. The Contractor and subcontractors are required to make available upon request its Affirmative Action Program containing goals and time specifications. These contractual provisions shall be fully enforced. Any breach of the provisions shall be regarded as a material breach of contract.
- B. The Contractor will keep such records as are necessary to determine compliance with equal employment opportunity obligations. The records kept by the Contractor will be designed to indicate the number of minority and nonminority group members and women employed in each work classification on the project. All such records must be retained for a period of three years following completion of the contract work and shall be available at reasonable times and places for inspection by authorized representatives of the Department of Natural Resources and any Federal Agency funding any part of this project.

"Minority employment goals are expressed as a percentage (%) of total hours worked for each craft and/or trade in each county."



PART 1 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

1.01 FEDERAL PARTICIPATION

- A. The attention of the Contractor is called to the provisions of the Acts of Congress known as the "Land and Water Conservation Fund Act", the "Federal Aid in Wildlife Restoration Act", the "Federal Aid in Fish Restoration Act", the "Boating Safety Act", the "Superfund Amendments and Reauthorization Act", the "Clean Water Act" and amendments thereto, and any other acts of congress providing for fish and wildlife of conservation improvements.
1. When the United States Government is to pay for all or any portion of the cost of an improvement or project, the construction work, although it is under the direct supervision of the Contracting Authority and subject to the laws of the State of Iowa, is also subject to the above mentioned Acts of Congress and all rules, regulations, and reimbursements that may be imposed by the federal authority thereunder. Such construction work will, therefore, be subject to inspection by the duly authorized agents of the federal government, but such inspections will not make the federal government a party to the contract.
- B. On all contracts involving Federal aid, all steel products incorporated into the work must have been manufactured in the United States. The Engineer may allow minimal amounts of these materials from foreign sources, provided the cost does not exceed 0.1 percent of the contract sum or \$2,500 whichever is greater.
- C. If the project involves federal assistance, comply with the following requirements.
1. Debarment and Suspension:
- a. **All Bidders must complete and return Form 5700-49 along with their bid.**
- b. On all federally assisted contracts and subcontracts in excess of \$25,000.00, any bidder or equipment supplier whose firm or affiliate is listed in the GSA publication "List of Parties Excluded from Federal Procurement and Nonprocurement Programs" will be prohibited from submitting a bid who is listed in this publication will be determined to be a nonresponsive bidder.
2. Violation Facilities: On all federally assisted contracts and subcontracts in excess of \$100,000.00, the Contractor shall comply with all applicable standards, orders or requirements issued under section 306 of the Clean Air Act (42 U. S. C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and EPA regulations (40 C.F.R. Part 15) which prohibit the use under

nonexempt Federal contracts, grants or loans, of facilities included on the EPA List of Violating Facilities.

3. Energy Efficiency: On all federally assisted contract and subcontracts, the Contractor shall comply with mandatory standards and policies on energy efficiency contained in the State's energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163).
 4. Where federal assistance for a project involving construction is received, comply with the following additional requirements:
 - b. The Copeland Act: The Copeland (Anti-Kickback) Act, and the regulations of the Department of Labor under 29 CFR Part 3 prohibit Contractors and Subcontractors from inducing any person involved in your project to give up any part of the compensation to which that person is entitled under an employment contract.
 - c. The Contract Work Hours and Safety Standards Act: The Contract Work Hours and Safety Standards Act (40 U.S.C. 327 et seq.) and the regulations for the Department of Labor under 29 CFR Part 5 require Contractors and Subcontractors to pay wages to laborers and mechanics on the basis of an eight hour work day and 40 hour work week and to pay at least time-and-a-half for work performed in excess of these time limitations. Also, the Act prohibits your contractors and subcontractors from requiring laborers and mechanics to work in hazardous, unsanitary, or dangerous conditions (see 29 CFR Part 1926).
 - d. Convict labor: You may not use convict labor unless the convicts are on work release, parole, or probation (see 18 U.S.C. 436).
 5. Minority Business Enterprise/Women's Business Enterprise: Each contractor must fully comply with the requirements, terms, conditions of the Environmental Protection Agency's policy to award a fair share of subagreements to minority and women's businesses. The description of the affirmative steps to be taken are attached (See Region VII Procedures for Implementation of 40 CFR Part 33.240 attached).
 6. Anti-Lobbying Act of 1990: The contractor which is awarded the low bid for a federally assisted contract and subcontract in excess of \$100,000.00, will need to complete the attached certification (See Recipient Certification - Anti-Lobbying Act of 1990).
- D. Additional Requirements under DNR Federal Grant Agreements regarding Termination of Contracts: Where construction contracts are being funded in whole or in parts by federal government monies, the following shall apply:

SPECIAL PROVISIONS
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1. Termination for Cause: The Department may terminate this Contract in whole or in part, at any time before the expiration date, whenever the Department has determined that the Contractor has materially failed to comply with the conditions of the Contract.
 - a. The Department shall promptly notify the Contractor in writing of the determination and reasons for the termination, together with the effective date.
 - b. Payments made to the Contractor or recoveries by the Department under Contract terminated for cause shall be in accord with the legal rights and liabilities of the parties.
2. Termination for Convenience: The Department or the Contractor may terminate the Contract in whole or in part when both parties agree that continuation of the Contract would not produce beneficial results commensurate with future expenditure of funds.
 - a. The two parties shall agree upon the termination conditions, including the effective date and, in the case of partial termination, the portion to be terminated.
 - b. The Contractor shall not incur new obligations for the terminated portion after the effective date and shall cancel as many outstanding obligations as possible.
 - c. The Contractor shall prepare and deliver to the Department copies of the final report summarizing the work performed and the results obtained to date.

D. Records:

1. Access to Records: The Department, the Federal Grantor Agency, the Comptroller General of the United States, or any of their duly authorized representatives shall have access to any books, documents, papers, and records of the Contractor which are directly pertinent to this Contract for the purpose of making audit, examination, excerpts and transcription.
2. Retention of Records: All records in the possession of the Contractor pertaining to this Contract shall be retained by the Contractor for a period of three (3) years beginning with the date upon which the final payment under this Contract is issued.

END OF SECTION 00812
SPECIAL PROVISIONS
00812-3

2/6/2012

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions and the Supplementary Covenants and Provisions.

1.02 SUMMARY OF WORK:

A. Work Covered by Contract Documents:

1. Name of the project is "Waubonsie State Park Boat Ramp & Shoreline Armoring", Project Numbers 12-04-36-02. Drawings and Specifications are dated 2013.
2. Briefly and without force and effect upon contract documents, work of the contract can be summarized as follows:
 - a. This project involves paving a boat ramp, placement of riprap near the boat ramp and incidental items as required by the project documents and the IDNR construction inspector at Waubonsie State Parks in Fremont County, Iowa.

B. Occupancy:

1. Owner: The DNR shall have the right to enter the building or work site and store or attach such fixtures or furniture as it may elect, or to do other work providing that such storage or work will not interfere with the completion of the Contractor's work. Such occupancy by the DNR shall in no way imply final acceptance of any portion of the Contractor's work.

1.04 MEASUREMENT AND PAYMENTS:

- A. Measurements and payments shall be in accordance with Section 01250 of these specifications.
- B. Before ordering any fabricated material or doing any work, verify all measurements at the project site. No additional compensation will be allowed because of difference between actual dimensions and the measurements indicated on the drawings. Report any difference immediately to the DNR for instructions before proceeding with the work.

1.06 COORDINATION:

- A. Project Coordination:
 - 1. Take out and pay for any building permit which may be required, secure and pay for all permits, certificates and licenses required to prosecute the work, and arrange and pay for all inspections required by local authorities.
 - 2. Visit the site, compare the Drawings and Specifications with any work in place, and verify all conditions, including other work, if any, being performed. Failure to visit the site will in no way relieve the Contractor from necessity of furnishing any materials or performing any work that may be required in accordance with Drawings and Specifications.
- B. Job Site Administration: Take complete charge of work under this contract. Coordinate the work of all trades and all phases of general, structural, plumbing, mechanical, and electrical work.

1.07 FIELD ENGINEERING:

- A. Provide such field engineering services as are required for a proper completion of the work.
 - 1. Immediately upon entering project site for the purpose of beginning work:
 - a. Establish actual project location, set back and side yards, if any, with the DNR Construction Inspector.
 - b. Establish and maintain all lines and levels.
- B. Additional requirements for field engineering may also be described in other sections of these specifications.
- C. Verify all figures shown on Drawings before laying out work and report all discrepancies to the DNR Construction Inspector. Contractor will be held responsible for any error resulting from failure to do so.

1.09 ABBREVIATIONS AND SYMBOLS:

- A. Reference to a technical society, institution, association, or government authority is made in the Specifications in accordance with the following abbreviations:

AAMA	Architectural Aluminum Manufacturers Association
AASHO	American Association of State Highway Officials
ACI	American Concrete Institute
AIA	American Institute of Project Engineers
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ALS	American Lumber Standards
APA	American Plywood Association
ATI	Asphalt Tile Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Project Architectural Wood Work Institute
AWPA	American Wood Preservers' Association
AWS	American Welding Society
CS	Commercial Standard, U.S. Department of Commerce
FGJA	Flat Glass Jobbers Association
FS	Federal Specification
GA	Gypsum Association
IES	Illuminating Engineering Society
MIA	Marble Institute of America
MLMA	Metal Lath Manufacturers Association
MS	Military Specification
MSTD	Military Standard
NAAMM	National Association of Metal Manufacturers, The
NHLA	National Hardwood Lumber Association
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NEC	National Electric Code of NBFU
NFPA	National Fire Protection Association
NLMA	National Lumber Manufacturers Association
NTMA	National Terrazzo and Mosaic Association, Inc.,
NWMA	National Woodwork Manufacturers Association
SDI	Steel Deck Institute
SSPC	Steel Structures Painting Council
SCPI	Structural Clay Products Institute
SPR	Simplified Practice Recommendations, U.S. Department of Commerce
TCA	Tile Council of America
UL	Underwriters' Laboratories, Inc.
USA	United States of America Standards Association

1.13 PROJECT MEETINGS:

- A. Preconstruction Conference: Soon after award of contract and prior to the start of construction, attend a preconstruction conference with the representative of the Owner to define the requirements for contract administration and construction operation.
 - 1. Contact the DNR Construction Inspector who will determine the time, date and place of the conference.
- B. Progress Meetings: The Contractor or the Contractor's representative shall be available at the job site to meet with the DNR Construction Inspector, as frequently and as arranged during the preconstruction conference, to discuss work progress.
 - 1. Give verbal report of progress, discuss work schedule, and present all conflicts, discrepancies and other difficulties for resolution.

1.16 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS:

- A. Definitions: Specific administrative and procedural minimum actions are specified in this section, as extension of provisions in other contract documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Project Engineer that such temporary activity is not required for successful completion of the work and compliance with contract documents.
- B. General: Establish and initiate use of each temporary facility at time first reasonably required for proper performance of the work. Terminate use and remove facilities at earliest reasonable time, when no longer needed or when permanent facilities have replaced the need.
- C. Temporary Utilities: The types of services required may include, but not by way of limitation, water, sewerage, surface drainage, electrical power and telephones. Where possible and reasonable, connect to existing franchised utilities for required services; comply with service companies recommendations on materials and methods, or engage service companies to install services. Locate and relocate services (as necessary) to minimize interference with construction operations.
 - 1. Sanitary Facilities:
 - a. Temporary Toilets: When such or permanent facilities do not exist, provide and maintain toilets for use by workers. Keep toilets in sanitary condition.
 - b. Temporary toilet facilities shall meet OSHA requirements.
- D. Security:
 - 1. Protection of Work and Property:
 - a. Place and maintain such barricades as may be necessary to prevent public access to the project site at no cost to the Owner.

E. Options and Substitutions:

1. Bid shall include all equipment, materials, and services as specified, noted on the Drawings or required for a complete and proper installation.

1.19 CONTRACT CLOSEOUT:

A. Final Cleaning:

1. Remove waste material and rubbish caused by the Work and leave all work clean and free of debris of any kind.
2. Keep the site and access road reasonably clean and free of rubbish or waste material in order that the work may progress efficiently. Remove such rubbish or waste material entirely from the premises at each time of such cleaning.
3. When the Work is completed and ready to turn over to the Owner, leave such work clean. This applies to all areas affected by contract work.
4. On completion of the Work, thoroughly police and clean-up the premises surrounding the building.

B. Final Inspection:

1. Request a final inspection in writing, at least ten days prior to the anticipated date of completion, from the DNR Construction Inspector.
2. Work will not be considered ready for final inspection until all the work has been completed and the Contractor has certified that all items are properly operating and in strict compliance with the Contract Documents.
3. The Contractor or project supervisor shall be at the job site during the final inspection.
4. After the inspection, the DNR Construction Inspector will present the Contractor a list of items not meeting contract requirements which must be made acceptable before final payment is made.

END OF SECTION 01000

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 DESCRIPTION OF WORK:

- A. Provide such field engineering services as are required for proper completion of the work including, but not necessarily limited to:
 - 1. Establishing and maintaining lines and levels;
 - 2. Structural design of shores, forms, and similar items provided as part of the Contractor's means and methods of construction;
 - 3. Establishing finish grade stakes (including blue tops) as necessary;
- B. Additional requirements for field engineering may also be described in other sections of these specifications.

1.03 REFERENCES:

- A. Refer to Section 1105.07 "Construction Stakes and Bench Marks" of the General Covenants and Provisions for assignment of responsibilities for the Owner and Contractor.

1.04 SUBMITTALS:

- A. Comply with pertinent provisions of Section 01300, if applicable.

1.05 PROCEDURES:

- A. In addition to procedure directed by the Contractor for proper performance of the Contractor's responsibilities:
 - 1. Locate and protect control points before starting work on the site.
 - 2. Preserve permanent reference points during progress of the work.
 - 3. Do not change or relocate reference points or items of the work without specific approval from the DNR Construction Inspector.
 - 4. Promptly advise the DNR Construction Inspector of a lost, destroyed, or reference point-requiring relocation due to other changes in the work.

- a. When directed by the DNR Construction Inspector, replace referenced stakes at no additional cost to the Owner.
- B. Meet with DNR Construction Inspector to establish actual building location, set backs, and side yards, if required.

END OF SECTION 01050

SECTION 01250
MEASUREMENT AND BASIS OF PAYMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 LUMP SUM / UNIT PRICE BID:

- A. Bid each item on a Unit Price basis or Lump Sum basis as required, including furnishing all labor, equipment and materials necessary to complete all the work indicated in the Contract Documents.

1.03 QUANTITIES:

- A. Various estimated quantities are furnished within the Contract Documents to assist the Contractor in reviewing the Project prior to bidding. The estimated quantities are not intended to be used by the Contractor as sole basis for determining the scope and volume of the work. The Contractor is responsible for verifying all quantities necessary to submit bids for the construction of a proper and complete project.

1.04 MEASUREMENT:

- A. The contractor is responsible for constructing the project to the final lines and grades shown. Owner will measure construction units only to ensure that at least minimum quantities have been properly installed.

1.05 SCOPE:

- A. Each item in the Bidder's Proposal Schedule of Prices will be paid at the unit or lump sum price. The price for each item shall be considered full compensation for furnishing superintendence, overhead, bonds, insurance, mobilization, testing and profit necessary to complete the construction of the item of the project listed in the Bidder's Proposal.
- B. It is not the intent of the Bidder's Proposal to itemize each and every item and system required. Items required for project completion and not specifically mentioned in Bidder's Proposal shall be included with items which they would be considered subsidiary.

1.06 ESTIMATED QUANTITIES:

- A. The items and quantities described above, as well as others listed throughout the Contract Documents, are provided for the bidder's review and consideration. The quantities listed herein are not guaranteed by the owner or the Project Engineer to be totally accurate nor to include all items of work. They are provided for the bidder's convenience to assist in the preparation of the bid. The bidder is responsible for preparing his own quantity takeoff and bid preparation.

END OF SECTION 01250

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SUMMARY:

- A. Provide submittals required in this Section, refer to technical specification for submittal requirements for each section of the work to be performed.

1.03 PROGRESS SCHEDULE:

- A. Submit a project schedule to the Project Engineer for approval within 30 days after award of contract, but not later than the contract start date. The type of schedule required is at Contractor's option.
- B. Prepare an approved, reproducible form and include the following:
 - 1. Breakdown of work activities in categories so approved and segmented as necessary to allow close monitoring of progress of the work during construction.
 - 2. Order of the work necessary to meet time for completion.
 - 3. Breakdown of the work schedule of all subcontractors scheduled in cooperation with Contractor's work.
 - 4. Anticipated monthly value for work completed.
 - 5. Space for the additional display of actual performance on the schedule.
- C. After necessary revisions have been made and approved, present one print of schedule to each subcontractor and three copies to the Owner.
- D. Upon request, update the schedule to reflect changes required by actual conditions and indicate actual work completed. Provide same number of copies as required for original submission.
- E. Payment will be withheld until progress schedule in acceptable form has been received by Project Engineer.

1.04 PRICE BREAKDOWN:

- A. Within 30 days after award of contract, but not later than the contract start date, submit to the Project Engineer for approval a price breakdown of major lump sum bid items into smaller components for the purpose of determining monthly progress payments.
- B. Include profit and overhead prices in each item.
- C. Payment will be withheld until receipt of price breakdown.
- D. Provide breakdown as follows:
- E. Items listed above include, but are not limited to, the following:

1.05 SHOP DRAWINGS AND MANUFACTURER'S LITERATURE:

- A. Prior to installation of any item specified as requiring submittal, submit two (2) copies for Owner's use plus the number required for return to the Contractor, of manufacturer's literature containing detailed specifications and performance data, or shop drawings fully describing the items showing fabrication, layout, setting or erection details, including erection plan and details as required.
- B. Number all submittals consecutively . Resubmittals shall bear the original submittal number plus a letter suffix: Example - #30A is the first resubmittal of item #30; #30B is the second resubmittal, etc.
- C. Shop drawings used at site must be approved by the Project Engineer.
- D. Do not construe the approval of shop drawings to be a complete check. This approval will indicate only that the general method of construction and detailing is satisfactory. Approval of such drawings will not relieve the Contractor of the responsibility to comply with all terms and conditions of the plans and specifications. The Contractor shall be responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work.

1.06 SAMPLES:

- A. Submit in Duplicate:
- B. Provide samples of sufficient size to permit an accurate appraisal of color, texture, finish, workmanship, and other appropriate characteristics.
- C. Submit samples with shop drawings when both are required.
- D. Field Samples and Mock-Ups:
 - 1. Erect mock-ups at location acceptable to the DNR Construction Inspector, at project site.

2. Construct each sample or mock-up complete to the dimension indicated, including work of all crafts required in finish work.

1.07 QUALITY ASSURANCE:

A. Coordination of Submittals:

1. Prior to submitting required material, carefully review and coordinate all aspects of each item being submitted.
2. Verify that each item and its submittal conform in all respects with the specified requirements.
3. Prior to sending submittals to Project Engineer, the stamp and sign each submittal, certifying that they conform in all respects with the specified requirements.

B. Substitutions:

1. The contract is based on the standards of quality established in the Contract Documents. Substitutions will be considered only when listed with the Project Engineer prior to the bid date, and when substantiated by Contractor's submittal of required data within 35 calendar days after award of contract.
2. The following products do not require further approval except for interface within the work:
 - a. Products specified by reference to standard specifications such as ASTM or similar standards.
 - b. Products specified by manufacturer's name and catalog model number for which another product is not substituted.
3. Do not substitute materials, equipment or methods unless such substitutions have been specifically approved in writing.

C. Or Equal:

1. Where the phrase "or equal," or "or equal as approved by the Project Engineer," occurs in the Contract Documents, do not assume that the materials, equipment or methods will be approved as equal unless the item has been specifically approved for this work by the Project Engineer.
2. The Project Engineer's decision shall be final.

1.08 RESUBMISSION REQUIREMENTS:

A. Shop Drawings:

1. Revise initial Drawings as directed and resubmit in accordance with submittal procedures.

2. Indicate on Drawings all changes which have been made in addition to those requested by the Project Engineer.
- B. Product Data and Samples: Resubmit new data and samples as specified for initial submittal.
 - C. Make all resubmittals within 7 calendar days after date of Project Engineer's previous review.

1.09 DISTRIBUTION OF SUBMITTALS AFTER REVIEW:

- A. Project Engineer will distribute copies of shop drawings and product data, after review, to:
 1. DNR Construction Inspector (1 copy)
 2. Project Engineer's File (1 copy)
 3. General Contractor (remaining copies)
- B. Project Engineer will distribute samples in accordance with requirements.

1.10 CONTRACTOR RESPONSIBILITIES:

- A. Review shop drawings, product data, and samples prior to submission to the next level of control.
- B. Verify:
 1. Field dimensions.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
- C. Coordinate each submittal with requirements of:
 1. The work.
 2. The contract documents.
 3. The work of other contractors.
- D. Contractor's responsibility for errors and omissions in submittals is not relieved by Project Engineer's review of submittals.
- E. Notify Project Engineer, in writing, of proposed deviations in submittals from contract requirements, prior to or at the time of submission.
- F. Contractor's responsibility for deviations in submittals from contract document requirements is not relieved by Project Engineer's review of submittals.
- G. Do not begin any work which requires submittals without having Project Engineer's stamp and initials or signature indicating approval.

1.11 REQUIRED SUBMITTALS:

- A. Include, but do not limit to, the following submittals:

<u>Spec. Section</u>	<u>Item Description</u>	<u>Shop Drawing</u>	<u>Product Data</u>	<u>Samples, Test Results, Certification</u>
02660	Water Distribution		X	
15400	Plumbing		X	
16000	Electrical		X	

1.12 RECORD DRAWINGS:

- A. Provide and maintain at the project site, one complete set of prints of the project drawings. The drawings shall be kept in good, clean and readable condition.
- B. The project site drawings shall have neatly inscribed all changes in work including relocation of lines, valves and fixtures, change in type of materials, etc. Changes shall be noted with red pencil or red ink.
- C. Submit these corrected prints at time of final acceptance and prior to final payment. Note all data and changes on these record drawings in sufficient detail and clarity and provide information necessary for preparation of "as-built" drawings.
- D. Final payment will be withheld until a set of corrected prints of the record drawings has been received by the Project Engineer/DNR Construction Inspector.

1.13 GUARANTEES, WARRANTIES AND CERTIFICATES:

- A. Submit all guarantees, warranties and certificates prior to final payment.
- B. Refer to Section 01700 of these specifications.

1.14 OPERATING AND MAINTENANCE INSTRUCTIONS:

- A. Submit all operating and maintenance instructions to the DNR Construction Inspector prior to final payment.
- B. Refer to Section 01700 of these specifications.

1.15 CHANGE ORDER PRICE QUOTES:

- A. In the event of the need for change order, the DNR Construction Inspector will request a price quote from the Contractor for proposed changes to the contract.

- B. For evaluation purposes, the Contractor's quote shall be broken down to show the costs of labor and materials for each proposed category of work included with the change, along with the total cost for Contractor's overhead, profit and bond for the proposed change.
- C. All contract time extensions required as a result of a proposed change must be justified and supported in detail at the time of the proposal.

1.16 TEST REPORTS:

- A. Refer to Section 01400 of these specifications.

1.17 DELIVERY TICKETS:

- A. Submit to the DNR Construction Inspector one legible copy of each delivery ticket for all material delivered to the construction site.
- B. The delivery ticket shall show brand name, catalog number and number of items received.

END OF SECTION 01300

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SCOPE:

- A. Supplementary tests and reports required in this section with any tests, reports, and other information that may be required additionally in any section of the specifications.
- B. Inspection, sampling, and testing is required, but not limited to, the following:
 - 1. Section 03300 – Cast In Place Concrete
- C. Sampling and testing frequencies and requirements are to comply with IDOT IM-204.

1.03 TESTS BY INDEPENDENT TESTING LABORATORY:

- A. Testing Laboratory:
 - 1. Contractor to select and pay for an independent testing laboratory, acceptable to the Project Engineer, to perform specified services required by the contract.
 - 2. Employment of testing laboratory will in no way relieve Contractor's obligations to perform work in accord with the contract.
 - 3. Include in lump sum bid the cost for all testing services required. No separate payments will be made for testing. Include all associated costs in the various appropriate bid items. Project Engineer/DNR Construction Inspector will direct all tests. The Contractor shall pay the testing firm.
- B. Contractor Shall:
 - 1. Make available at no cost, all material to be tested.
 - 2. Provide labor necessary to supply samples and assist in making tests.
 - 3. Advise laboratory of the identity of material sources and instruct suppliers to allow inspections by laboratory.

C. Testing laboratory shall:

1. Submit written report promptly, covering each inspection and test to the Project Engineer, including:
 - a. Date issued.
 - b. Project title and number.
 - c. Testing laboratory name and address.
 - d. Name and signature of laboratory technician.
 - e. Date of inspection and sampling.
 - f. Record of temperature and weather.
 - g. Date of test.
 - h. Identification of product and specification section.
 - i. Location of project.
 - j. Type of inspection or test.
 - k. Observations regarding compliance with Contract Documents.
2. Promptly notify Project Engineer of irregularities or deficiencies of work which are observed during performance of testing services.
3. Perform additional services required by the Project Engineer/DNR Construction Inspector.

D. Laboratory is not authorized to:

1. Release, revoke, alter or enlarge on, contract requirements.
2. Approve or accept any portion of work.
3. Perform any duties of the Contractor.

E. Conduct tests in accordance with the requirements of the designated specifications or, where not specified, the latest appropriate standard of the American Society for Testing and Material.

1.04 LABORATORY SERVICES AND TESTS REQUIRED:

A. Concrete:

1. Secure samples of aggregates Contractor proposes to use and test for compliance with specifications.
2. Certify compliance with specification of cement proposed for use by the Contractor.
3. Review concrete design mix proportions for the required concrete strengths using materials Contractor proposes to use on the project. Incorporate specified admixtures and not less than amount of cement specified. Perform appropriate laboratory tests, including compression tests of cylinders and slump test to substantiate mix designs. Submit one copy of report to the Project Engineer, one copy to the DNR Construction Inspector, and one copy to the Contractor, clearly indicating the results of the mix design review.
4. When requested by the DNR Construction Inspector, inspect and test material during concrete work to substantiate compliance with specifications and mix requirements.

5. Slump Test: The DNR Construction Inspector will require slump tests to be performed as he desires in accordance with the provisions of these specifications.
6. Test Cylinders:
 - a. Each test shall consist of a set of three cylinders provided by the Contractor. Sampling and testing frequencies and requirements are to comply with IDOT IM-204.
 - b. Provide a minimum of one set of test cylinders each day concrete is placed.
 - d. The Contractor shall make and cure test cylinders in conformity with ASTM C-31.
 - e. Note on record drawings placement locations represented by test cylinders.
7. Perform compression tests in accordance with applicable sections of IDOT specifications.
8. Identify all test cylinders with symbols to indicate location on the job where concrete tests were made. Note on record drawings.

C. Aggregate gradation and compaction as per applicable specifications.

1.05 CONTRACTOR'S RESPONSIBILITIES:

- A. Furnish product mix design to meet or exceed Contract Documents.
- B. Cooperate with laboratory personnel and provide access to work, as well as to manufacturer's operations.
 1. Monitor each inspection, sampling and test.
- C. Provide to laboratory, preliminary representative samples of material to be tested, in specified quantities.
- D. Furnish copies of mill test reports.
- E. Furnish verification of compliance with contract requirements for material and equipment.
- F. Furnish casual labor and facilities:
 1. To provide access to work to be tested.
 2. To obtain and handle samples at site.
 3. To facilitate inspections and tests.
 4. For laboratory's exclusive use for storage and curing of test samples.
- G. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests. Notify DNR Construction Inspector when work is ready for testing. Schedule

testing after approval of the DNR Construction Inspector. The Department of Natural Resources will not pay for any testing scheduled without the DNR Construction Inspector's specific authorization.

- H. Correct work which is defective or which fails to conform to the Contract Documents in accordance with the general condition. Do not delay the project schedule or the work of other contractors with corrective work.
- I. Pay all costs of re-testing when test results indicate non-compliance with contract requirements.
- J. Patch all surfaces and areas disturbed by testing operations.

END OF SECTION 01400

SECTION 01500
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 WEATHER PROTECTION:

A. General:

1. Provide necessary protection against weather to maintain all materials, apparatus, fixtures, and work free from damage whether in shipment, in storage, or in place.
2. Do not perform wet work when temperature is below 40 degrees Fahrenheit or is forecast to be below 40 degrees Fahrenheit within the ensuing 48 hours, except when work is properly protected and sufficient heat is provided.

B. Heat Provision:

1. When heat is required for proper weather protection, provide temporary enclosures of work and acceptable means to provide sufficient heat to maintain a temperature of not less than 50 degrees Fahrenheit. Provide higher temperatures when required by these specifications.
2. Use only heating apparatus and fuels of approved safe types. Keep equipment and surroundings in a clean, safe condition. Use flame resistant tarpaulins and other materials for temporary enclosure of space. Use vented heaters only.

1.03 TEMPORARY UTILITIES:

A. Electricity, Lighting and Heating:

1. Provide such temporary service as may be required for construction purposes with required distributing facilities and meter.
2. Pay the cost of all electrical energy used on this part of the project until completion of the contract. If partial occupancy by the Owner occurs prior to completion, the Owner will pay proportional share of electrical energy used.
3. Provide light bulbs required for all temporary construction lighting and replace when necessary.
4. Use no temporary service material in permanent system without written approval of the Owner. When temporary electrical lines are no longer required, remove them

and restore any parts of buildings or grounds damaged by such removal to original condition.

5. Provide and maintain temporary lighting at barricades as required for safety.
6. Provide any heating required by these specifications.

B. Telephone:

1. Install a telephone on field office for the use of all persons working at the project site. Pay all charges for telephone service.

C. Water:

1. Provide, protect, and maintain an adequate water supply for use on the project for construction purposes, either by means of the permanent water supply line or by installing a temporary waterline.
2. Install, valve, maintain, and protect such water supply lines as may be required.
3. Remove temporary lines when they are no longer required. Restore to original condition any part of grounds or buildings damaged by removal.
4. Pay the cost of all water used on this portion of the project until final completion of the contract.

D. Toilets:

1. Provide and maintain suitable, weather tight, painted sanitary toilet facilities for all workers during construction period. When toilet facilities are no longer required, promptly remove from site. Disinfect, clean or treat the area as required.
2. Provide and maintain facilities in accordance with requirements of applicable local and state health authorities and OSHA.
3. Keep all toilet facilities clean and supplied with toilet paper at all time.

1.04 OPERATION AND STORAGE AREAS:

- A. All operations of the Contractor (including storage of materials) upon premises shall be confined to areas authorized or approved by the DNR.
- B. Premises adjacent to the construction will be made available for use by the Contractor without costs whenever such use will not interfere with other uses or purposes.
- C. Do not enter on or occupy with personnel, tools, equipment, or material any ground outside the DNR's property without the written consent of the owner of such ground.
- D. Other contractors and employees or agents of the DNR may for all necessary purposes enter upon the work and premises used by the Contractor, and the Contractor shall conduct

TEMPORARY FACILITIES AND CONTROLS

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his work so as not to impede unnecessarily any work being done by others on or adjacent to the site.

- E. Provide and maintain weather tight storage sheds for own use.
- F. Provide storage sheds with substantial floors raised a minimum of six (6) inches above the ground.
- G. Locate all storage sheds as approved by the DNR Construction Inspector.
- H. Completely remove from site after completion of work.

1.05 PROTECTION AND RESTORATION:

- A. General: Protect all structures, including walks, pipelines, trees, shrubbery, and lawns during the progress of the work; remove from the site all debris and unused materials; and, upon completion of the work, restore the site as nearly as possible to its original condition, including the replacement, at the Contractor's sole expense, of any facility or landscaping which has been damaged.

1.06 ACCESS ROADS:

- A. Temporary Roads and Storage Areas:
 - 1. Construct and maintain all temporary access roads and storage areas required. Locate and construct all roads, ramps, mats, storage areas, and similar items in a manner approved by the Owner and provide overall management of available site areas.
- B. Laws and Regulations:
 - 1. Observe all laws and regulations of the local, county, and state authorities in the use of all public roads and highways for the transportation of materials and equipment in connection with work on the project. Observe all overhead construction, bridges, cables, and the like. Repair damage to roads, highways, overhead construction and similar off-site items, resulting from operations in connection with this project.

1.07 WATER CONTROL:

- A. Carry on construction work in a manner that will direct surface water away from the structures and away from adjoining property.
- B. Provide own means of pumping, well pointing or otherwise maintaining excavations free from ground water encountered. Provide means of properly conveying such water off the construction site.

1.08 PARKING:

- A. Make necessary provisions for parking of all employees on the project within the site limits. Include necessary access roads and maintenance of all roads and parking areas during construction period.
- B. Park vehicles to avoid interference with normal construction activities and to avoid interference with Owner's operation.

1.10 SAFETY:

- A. Provide at least one non-freezing-type fire extinguisher in each workshop and shed used for storage of materials on the premises. Place in readily accessible location.
- B. Provide and maintain a basic first aid kit.
 - 1. Provide first aid supply commensurate with size of project with items necessary for first aid treatment of all injuries.
 - 2. Advise workers of the location of first aid supplies.
 - 3. Post telephone numbers of nearest hospital or ambulance service and fire station in conspicuous location. Advise all workers of location of telephone numbers.

END OF SECTION 01500

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: The work consists of furnishing all labor, material and equipment for the control and prevention of environmental pollution and damage as the result of construction operations under this Contract and for those measures set described herein, as indicated on the Drawings, specified herein, and as required for the construction of all work of this contract.
 - 1. Scope: The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy and radioactive materials, as well as other pollutants.
 - 2. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire period of this contract.
 - a. Confine activities to areas defined by the Drawings and Specifications.
- B. Related Sections: Drawings and General Provisions of the Contracts, including the General Covenants and Provisions, Supplementary Covenant and Provisions and General Requirements.
- C. Lump Sum Prices: The cost of the work covered under this section shall be covered under the "Erosion Control" Lump Sum Bid Item, and such work will further be considered as a subsidiary obligation of the Contractor as specified herein.

1.02 REFERENCES:

- A. Provide protection of Air Resources in accordance with the following state and local codes and rules: Iowa Department of Environmental Quality Act, Oh. 455B of the 1977 Code of Iowa; Iowa Department Rules, 1973 I.D.R. 267 et seq.

1.03 DEFINITIONS:

- A. Environmental pollution and damage: For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural and/or historical purposes.

1.04 QUALITY ASSURANCE:

- A. Quality Control: Establish and maintain quality control for environmental protection of all items set forth herein.

1. Record on daily reports any problems in complying with laws, regulations and ordinances and corrective action taken.
 2. Assure compliance of subcontractors with this section.
- B. Regulatory Requirements:
1. Notification: The Project Engineer/DNR Construction Inspector will notify the Contractor in writing of any observed noncompliance with the aforementioned Federal, state or local laws, or regulations, permits and other elements of the Contractor's environmental protection plan.
 2. After receipt of such notice, inform the Project Engineer/DNR Construction Inspector of proposed corrective action and take such action as may be approved.
 3. If the Contractor fails to comply promptly, the Project Engineer/DNR Construction Inspector may issue an order stopping all or part of the work until satisfactory corrective action has been taken.
 - a. No time extensions shall be granted such suspension.
- C. National Pollutant Discharge Elimination System (NPDES): Contractor to provide a Notice of Intent (Form 1415) for application of a General Permit for Storm Water Discharge, file all necessary Forms and Drawings with the applicable Bureau of the DNR, and pay necessary application fees.(Required for sites of one acre or more)
1. For Storm Water General Permit Assistance: Contact (515)281-7017 or (515)281-8693 for information.
- D. Pollution Control Training: Train personnel in all phases of environmental protection.
1. Include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities to insure adequate and continuous environmental pollution control.

1.05 PROJECT/SITE CONDITIONS:

- A. Environmental Requirements:
1. Protection of Land Resources: Prior to beginning construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area.

1.06 MAINTENANCE OF POLLUTION CONTROL FACILITIES:

- A. Maintain all constructed facilities and portable pollution control devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

PART 2 - PRODUCTS

2.01 MATERIAL AND EQUIPMENT:

- A. Provide and maintain material and equipment necessary to perform the specified work.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Verification of Conditions: Prior to beginning construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area.
- B. Limits of Work Area:
 - 1. Mark the areas that are not required to accomplish work to be performed under this contract.
 - 2. Mark or fence isolated areas within the general work area which are to be saved and protected.

3.02 PROTECTION OF LAND RESOURCES:

- A. Do not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, top soil, and land forms without special permission from the Contracting Authority.
- B. Do not fasten nor attach ropes, cables, or guys to any trees for anchorage unless specifically authorized.
- C. Where such special emergency use is permitted, provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

3.03 PROTECTION OF MONUMENTS AND MARKERS:

- A. Protect monuments and markers before and during construction operations.
- B. Where construction operations are to be conducted during darkness, the markers shall be visible.
- C. The Contractor shall convey to his personnel the purpose of marking and/or protection of all necessary object.

3.04 PROTECTION OF LANDSCAPE:

- A. Clearly identify trees, shrubs, vines, grasses land forms and other landscape features to be preserved by marking, fencing, or wrapping with boards, or any other approved techniques.

3.05 LOCATION OF FIELD OFFICES, STORAGE AND OTHER CONTRACTOR FACILITIES:

- A. Place field offices, staging areas, stockpile storage, and temporary buildings in areas approved by the Project Engineer/DNR Construction Inspector.
- B. Do not temporarily move or relocate Contractor facilities unless approved by the Engineer/DNR Construction Inspector.

3.06 DISPOSAL OF SOLID WASTES:

- A. Place solid wastes in containers to be emptied on a regular schedule.
 - 1. Conduct handling and disposal to prevent contamination.
 - 2. Transport all solid waste off state property and dispose of in compliance with Federal, state, and local requirements for solid waste disposal.

3.07 DISPOSAL OF CHEMICAL WASTE:

- A. Store chemical waste in corrosion resistant containers, remove from the work area and dispose of in accordance with Federal, state and local regulations.

3.08 DISPOSAL OF DISCARDED MATERIALS:

- A. Handle discarded materials other than those which can be included in the solid waste category as directed by the Contracting Authority.

3.09 PRESERVATION AND RECOVERY OF HISTORICAL, ARCHEOLOGICAL AND CULTURAL RESOURCES:

- A. Existing historical, archeological and cultural resources within the Contractor's work area will be so designated by the Department and precautions taken to preserve all such resources as they existed at the time they were pointed out to the Contractor.
- B. Install protection and assume responsibility for the preservation of these resources as designated on the Drawings, or if not designated as necessary for their preservation.
- C. Report any unusual items that might have historical or archeological value, found or observed during construction activities as soon as practicable to the DNR Construction Inspector.

3.10 PROTECTION OF WATER RESOURCES:

- A. Keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters.
- B. Implement applicable management techniques to control water pollution in accordance with the listed construction activities which are included in this contract.

- C. Installation, maintenance and removal of water pollution control methods and materials to be incidental to other items of work on the project, unless a specific Bid Item for Erosion Control exists.
- D. Comply with detailed Project Plans for temporary erosion control procedures to be performed on this project.

3.11 PROTECTION OF FISH AND WILDLIFE RESOURCES:

- A. Keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife.
- B. List species that require specific attention along with measures for their protection prior to beginning of construction operations.

3.12 PROTECTION OF AIR RESOURCES:

- A. Keep construction activities under surveillance, management and control to minimize pollution of air resources. Perform or operate activities, equipment, processes, and work to accomplish the specified construction in strict accordance with the State of Iowa and all Federal emission and performance laws and standards.
- B. Implement special management techniques as set out below to control air pollution by construction activities.
 - 1. Control of Particulates: Control dust particles, aerosols, and gaseous by-products from all construction activities at all times, including weekends, holidays and hours when work is not in progress.
 - a. Maintain all work areas within or outside the project boundaries free from particulates which would cause the applicable air pollution standards to be exceeded or which would cause a hazard or a nuisance.
 - b. Sprinkling, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators or other methods will be permitted to control particulates in the work area.
 - c. Sprinkling, to be efficient, must be repeated at such intervals as to keep the disturbed area damp at all times, The Contractor must have sufficient competent equipment available to accomplish this task.
 - d. Perform control of particulates as the work proceeds and when ever a particulate nuisance or hazard occurs.
 - 2. Control hydrocarbons and carbon monoxide emissions from equipment in accordance with Federal, State and local allowable limits at all times.
 - 3. Control odors at all times for all construction activities.

4. Assume responsibility for monitoring of air quality throughout the entire areas affected by the construction activities.

3.13 PROTECTION OF SOUND INTRUSIONS:

- A. Keep construction activities under surveillance and control to minimize damage to the environment by noise.

3.14 MOSQUITO CONTROL:

- A. During dredging and due to large areas of shallow water in the disposal area, mosquito breeding must be controlled.
- B. Deposit dredge material to minimize stagnant water pools.
- C. Conduct non-aerial spraying or other methods of application of EPA approved chemicals to control mosquito breeding.

3.15 CLEANING:

- A. Post Construction Clean Up: Cleanup all areas used for construction.
- B. Restoration of Landscape Damage: Restore all landscape features damaged or destroyed during construction operations outside the limits of the approved work areas, in accordance with the plan submitted for approval by the Contracting Authority.

END OF SECTION 01560

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 MATERIAL:

- A. All materials, equipment, and other items incorporated in the work of this project must be new, and both materials and workmanship of best grade of their respective kinds.
- B. To assure ready availability of materials, parts, or components for repair, replacement or future expansion purposes, all materials, equipment, and related components must be obtained from sources which maintain a regular, domestic stock.
- C. Throughout all sections of these specifications, provide other material not specifically described but required to provide Owner with a complete and proper installation of all phases of the work of this contract. Select these materials subject to the approval of Project Engineer/DNR Construction Inspector.

1.03 ITEMS NOT IN CONTRACT:

- A. All items indicated "N.I.C." on drawings or specifications are items not included in this contract.
- B. Provide necessary provisions in the work of this project to permit proper installation of "N.I.C." items.

1.04 OWNER-FURNISHED MATERIALS, SUPPLIES, AND EQUIPMENT:

- A. The Owner will furnish materials as specified in Part 2, Section 2.02 of Specification Section 11290, concurrent to this contract. Such items are to be installed and tested by the Contractor after the completion of the structure.

1.05 TRANSPORTATION AND HANDLING:

- A. Provide protection against damage for all materials during delivery to and storage at the site.
- B. Handling of all materials and equipment shall be such as will prevent damage to such material and/or equipment.
- C. Replace or repair to the satisfaction of the DNR Construction Inspector, all items damaged because of Contractor's failure to properly protect during transportation and handling, when on or off the project site, at no additional cost to the Owner.

1.06 STORAGE AND PROTECTION:

- A. Protect all materials, work, and equipment against damage at all times.
- B. Refer to Section 01500 for requirements for storage sheds. Store all materials that might be damaged within storage sheds.

END OF SECTION 01600

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 CLEANING UP:

- A. Keep premises free of accumulation of surplus materials and rubbish from contractor and subcontractor operations.
 - 1. Remove all rubbish from premises.
- B. Remove rubbish weekly and at other times as required by the DNR Construction Inspector. Keep interior of building free at all times of unattended combustible rubbish.
- C. Immediately prior to final inspection:
 - 1. Clean all surfaces to condition acceptable for immediate occupancy.
 - 2. Remove all marks, stains, fingerprints, paint droppings, and other foreign matter from all finished items.

1.03 GUARANTEES, BONDS AND AFFIDAVITS:

- A. Submit all written guarantees, bonds and affidavits required to the Owner prior to final payment.
- B. Guarantees shall extend the full period of the required guarantee period after:
 - 1. Replacement of work found defective during guarantee period.
 - 2. Repair of inoperative items or adjustments to proper working conditions of items not operating properly at time of inspection at final completion.

1.04 RECORD DRAWINGS:

- A. Required prior to final payment. Refer to Section 01300 of these specifications. Submit to DNR Construction Inspector.

1.05 SHOP DRAWINGS:

- A. Refer to Section 01300 of these specifications.

1.06 TESTS:

- A. Complete all tests required to prove actual operating performance of equipment and systems incorporated into the project. Refer to Section 01400 of these specifications.
- B. Submit reports of all tests to the Owner prior to final payment.

1.07 MAINTENANCE AND OPERATING:

- A. Refer to Section 01730 of these specifications, if applicable.

1.08 DAMAGE TO EXISTING STRUCTURES:

- A. Prior to final acceptance by the Owner, repair or otherwise return to original condition any parts of the existing facilities which have been damaged during construction.

1.09 FINAL INSPECTION:

- A. Request a final inspection in writing, at least ten days prior to the anticipated date of completion, from the DNR Construction Inspector.
- B. Work will not be considered ready for final inspection until all the work has been completed and the Contractor has certified that all items are properly operating and in strict compliance with the contract documents.
- C. The Contractor or his project supervisor shall be present at the job site during the final inspection.
 - 1. The DNR Construction Inspector will present the Contractor, after the final inspection, a list of any items not meeting contract requirements. This list will be confirmed in writing and all items listed must be made acceptable before final payment will be made.

END OF SECTION 01700

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: To aid the instruction of operating and maintenance personnel, and to provide a source of information regarding the systems incorporated into the Work, furnish and deliver the data described in this section and in pertinent other sections of these specifications.

- 1. Additional data requirements may be described in individual sections.

- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

1.02 SUBMITTALS:

- A. Comply with pertinent provisions of Section 01300.
- B. Submit two copies of a preliminary draft of the proposed manual or manuals to the Engineer for review and comments.
- C. Unless otherwise directed in other sections, or in writing by the Engineer, submit two copies of the final manual to the DNR Construction Inspector.

1.03 QUALITY ASSURANCE:

- A. In preparing required data, use only personnel thoroughly trained and experienced in operation and maintenance of the described items, completely familiar with this section's requirements, and sufficiently skilled in technical writing to communicate the essential data.

PART 2 - PRODUCTS

2.01 INSTRUCTION MANUALS:

- A. Where instruction manuals are required to be submitted under other sections of these specifications, prepare in accordance with the provisions of this section.
- B. Format:
 - 1. Size: 8-1/2" x 11"
 - 2. Paper: White bond, at least 20 lb. weight
 - 3. Text: Neatly written or printed

4. Drawings: 11" in height preferable; bind in with text; foldout acceptable; larger drawings acceptable but fold to fit within the manual and provide a drawing pocket inside rear cover or bind in with text.
 5. Flysheets: Separate each portion of the manual with neatly prepared flysheets briefly describing contents of the ensuing portion; flysheets may be in color.
 6. Binding: Use heavy-duty plastic or fiberboard covers with 3-ring binders. All binding is subject to the Owner's approval.
 7. Measurements: Provide all measurements in U.S. standard units: feet-and-inches, lbs., and cfm.
- C. Provide front and back covers for each manual, using durable Owner's approved material, clearly identified on or through the cover with at least the following information:

OPERATING AND MAINTENANCE INSTRUCTIONS

- (name and address of work)
- (name of contractor)
- (general subject of this manual)
- (space for approval signature of)
- (the owner and approval date)

- D. Contents include at least the following:
1. Neatly typewritten index near the front of the manual, giving immediate information as to location within the manual of all emergency information regarding the installation.
 2. Detailed list of subcontractors, including address, phone number and product or equipment installed.
 3. Complete instructions regarding operation and maintenance of all equipment involved, including lubrication, disassembly, and reassembly.
 4. Complete nomenclature of all parts of all equipment.
 5. Complete nomenclature and part number of all replaceable parts, name and address of nearest vendor, and all other data pertinent to procurement procedures.
 6. Copy of all guarantees and warranties issued.
 7. Manufacturers' bulletins, cuts, and descriptive data, where pertinent, clearly indicating the precise items included in this installation and deleting, or otherwise clearly indicating, all manufacturers' data with which this installation is not concerned.
 8. Such other data as required in pertinent sections of these specifications.

PART 3 - EXECUTION

3.01 INSTRUCTION MANUALS:

A. Preliminary:

1. Prepare a preliminary draft of each proposed manual.
2. Show general arrangement, nature of contents in each portion, probable number of drawings and their size, and proposed method of binding and covering.
3. Secure the Architect's approval prior to proceeding.

B. Final: Complete the manuals in strict accordance with the approved preliminary drafts and the Architect's review comments.

C. Revisions:

1. Following the instruction of operation and maintenance personnel, review all proposed revisions of the manual with the DNR Construction Inspector.

END OF SECTION 01730

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes:

1. The work consists of the removal and relocation of structures, removal of above- and below-grade improvements, growth and vegetation, and related items necessary to complete the work indicated on the Drawings and as specified herein.
2. Also included are:
 - a. Cutting, filling, fill compaction, rough grading, and related items.
 - b. Clearing, grubbing, removal of trees and stumps.
 - c. Removal of buildings, structures and foundations not elsewhere specified.
 - d. Stripping and stockpiling of topsoil.
 - e. Removal of underground utilities and obstructions.
3. Deposit excess excavated material on site as directed by the DNR Constructor Inspector.
4. Spread material and grade to drain so as to avoid forming of ponding areas.

- B. Related Sections: Drawings and General Provisions of the Contract, including the General Covenants and Provisions. Supplementary Covenants and Provisions and General Requirements as well as, but not limited to, the following:**

Section 02200 - Earthwork

1.02 PROJECT/SITE CONDITIONS:

A. Existing Conditions:

1. Survey job conditions prior to commencing work.
2. Accept the site as found and remove all trash and rubbish prior to any cut and fill operation.

- B. Protection of existing improvements: Provide protections to prevent damage to existing improvement remaining in place on owner's property as well as on adjoining properties, particularly but not limited to, the following:**

1. Existing utilities or services.

2. Field drain tiles.
 3. Repair or replace any improvement not designated to be removed which has been damaged at no cost to the owner.
- C. Protection of existing trees and improvements:
1. Protect existing trees and other vegetation indicated or as directed by DNR Construction Inspector to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction material or excavated materials within drip line, excess foot traffic or vehicular traffic, or parking of vehicles within drip line.
 2. Provide temporary guards to protect trees and vegetation to be left standing.
 3. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to the DNR Construction Inspector.

1.03 SEQUENCING AND SCHEDULING:

- A. Arrange for proper disposal of water and sewer during work involving temporary connection and stoppage of these utilities.
- B. Assume responsibility for coordination with utility companies.
- C. Obtain approval with the DNR Construction Inspector prior to starting removal of any improvement specified or not in the work of this section.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT:

- A. Provide materials and equipment as required to perform work specified.

PART 3 - EXECUTION

3.01 SITE PREPARATION:

- A. General: Remove vegetation, improvement, or obstructions interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated.
 1. Removal includes digging out stumps, roots, and boulders.
- B. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than four inches.
 1. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over two inches in diameter, and without weeds, roots, and other objectionable material.

- C. Strip Topsoil: Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable materials.
- D. Stockpiling: Stockpile topsoil in storage piles in areas shown or as directed by the DNR Construction Inspector. Cover storage piles if required to prevent wind-blown dust.
- E. Clearing and Grubbing: Clear site of trees, shrubs, and other vegetation, except those indicated or directed to be left standing.
 - 1. Remove trees designated to be removed.
 - 2. Do not remove other trees without the authorization of the DNR Construction Inspector.
 - 3. Remove trees or vegetation to facilitate access to the work at no cost to the owner.
 - 4. Completely remove stumps, roots, boulders and other debris protruding through the ground.
 - a. Use only hand methods for grubbing inside drip line of trees indicated to be left standing.
- C. Drainage Channel Excavation: Excavate channel as shown on the Drawings, as specified herein or as indicated by the DNR Construction Inspector.
- D. Pavement Removal: Remove pavement, as shown on the Drawings or as indicated by the DNR Construction Inspector, as specified herein:
 - 1. Concrete: Cut with concrete saw down to a minimum of one inch and break slab as approved by the DNR Construction Inspector.
 - 2. Brick or Pavers: Remove in uniform pattern and store as approved to reuse.
 - 3. Asphalt: Cut edges neatly where indicated.
 - 4. Sidewalk: Remove to nearest joint.
 - 5. Trenching Through Pavement: Where trenching through pavement is approved for passage of utilities, cut pavement sidewalks, and curbs and gutter.
 - a. Cut straight lines parallel to the centerline of the trench at a minimum of one foot from the edge of trench.
 - b. Do not undercut.
- E. Construction along or across highways and railroads.
 - 1. Maintain traffic flow on highways and obtain work permit.
 - 2. Obtain necessary work permit from authorized railroad official or highway authority before commencing construction.

3. Refer to plans for details of construction, traffic control and casing pipe specifications, if required.
 4. Conform to additional construction requirements of railroad or highway authority as may be required by the permit.
 5. Provide warning lights, signals, flaggers, or other precautionary measures as required to protect work and traffic.
 6. Before excavation on railroad property, check with railroad for location of all buried utilities or cables.
 7. Officials of railroad will have right to inspect and regulate work.
 8. Railroad will have right to stop work and correct any error with railroad forces at Contractor's expense in an emergency or if Contractor refuses to make timely repairs.
 9. All railroad expenses for labor and material for removing and replacing tracks, or for inspectors, flaggers, watchers, or protective devices or any other labor or material as specified, shall be reimbursed directly to the railroad by the owner.
 - a. Work performed by the railroad at Contractor's option shall be reimbursed directly to the railroad by the Contractor.
- F. Depressions: Fill depressions caused by clearing and grubbing operations with satisfactory soil materials, unless further excavation work is required or indicated.
- G. Removal of Improvements: Remove above-grade and below-grade improvements necessary to permit construction, and other work as indicated.
- H. Access to Streets and Highways: maintain suitable means of access for property owners' abutting streets and highways involved in construction.
1. Notify property owners 24 hours in advance of street closure.
 2. Suitable access shall mean roadway of sufficient width, free from ruts, potholes and mud holes, and capable of carrying a passenger car without damage to car.
 3. When access must be denied due to construction, provide suitable access within 24 hours after responsible construction is completed.
 4. Whenever construction is stopped due to inclement weather, weekends, holidays or other reasons, provide suitable access for all property owners.
 5. Maintain suitable means of access at all times to the park officer's residence and all other private residences which may be affected by the construction.

3.02 GRADING:

- A. Grade all areas as part of the work of this section or disturbed by construction operators.
- B. Grade to smooth uniformly slope surfaces, fill all depressions, and provide for positive drainage.

3.03 DISPOSAL OF WASTE MATERIAL:

- A. Dispose of surface materials, construction debris and trees in accordance with local ordinances.
- B. Burning on State Property: See Section 1107.07 of the General Covenants and Provisions.
- C. Removal of Materials: See Section 1104.08 of the General Covenants and Provisions.

END OF SECTION 02100

PART 1 - GENERAL

1.01 SUMMARY:

A. Section Includes:

1. The work consists of cutting, filling, rough grading, and related items necessary to complete the work indicated on the Drawings and as specified herein. This includes clearing and grubbing, removal of trees and stumps, building structures and foundations, stripping and stockpiling of topsoil, removal of underground obstructions and utilities, cutting, filling, fill compaction, and rough grading.
2. Deposit excess excavation material where directed by the DNR Construction Inspector. Spread material and grade to drain to avoid forming ponding areas.
3. Accept the site as found and remove all trash and rubbish prior to any cut and fill operation.

B. Related Sections: Drawings and General Provisions of the Contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not limited to, the following:

Section 02200 - Earthwork

1.02 PROTECTION OF EXISTING IMPROVEMENTS:

- A.** Provide protections necessary to prevent damage to existing improvements remaining in place. Protect improvements on adjoining properties and on state of Iowa property. Restore damaged improvements to their original conditions, as acceptable to parties having jurisdiction.

1.03 PROTECTION OF EXISTING TREES AND VEGETATION:

- A.** Protect existing trees and other vegetation indicated or as directed by DNR Construction Inspector to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot traffic or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.
- B.** Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to the DNR Construction Inspector.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Provide materials as required to perform work specified.

2.02 EQUIPMENT:

- A. Provide equipment as required to perform work specified.

PART 3 - EXECUTION

3.01 SITE CLEARING:

- A. General: Remove vegetation, improvement, or obstructions interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated.
 - 1. Removal includes digging out stumps, roots, and boulders.
- B. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than four inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over two inches in diameter, and without weeds, roots, and other objectionable material.
- C. Strip Topsoil: Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable materials.
- D. Stockpiling: Stockpile topsoil in storage piles in areas shown or as directed by the DNR Construction Inspector. Cover storage piles if required to prevent wind-blown dust.
- E. Clearing and Grubbing: Clear site of trees, shrubs, and other vegetation, except those indicated or directed to be left standing.
- F. Completely remove stumps, roots, boulders and other debris protruding through the ground. Use only hand methods for grubbing inside drip line of trees indicated to be left standing.
- G. Depressions: Fill depressions caused by clearing and grubbing operations with satisfactory soil materials, unless further excavation work is required or indicated.
- H. Removal of Improvements: Remove above-grade and below-grade improvements necessary to permit construction, and other work as indicated.

3.02 DISPOSAL OF WASTE MATERIALS:

- A. Burning on State Property: See Section 1107.07 of the General Covenants and Provisions.
- B. Removal of Materials: See Section 1104.08 of the General Covenants and Provisions.

END OF SECTION 02110

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: The work covered by this section consists of site clearing, grading, general and building excavation, disposal of debris and spoils, dewatering, preparation of subgrade, foundations, borrow, embankment, structural and general backfill, restoration, and cleanup necessary to construct the project, all as shown on the drawings and as specified herein.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.
- C. Method of measurement: The quantity of fill material acceptably placed in the embankment will be measured and computed in cubic yards by the average end area method, to the nearest cubic yard.
 - 1. The soil preparation not otherwise included elsewhere will be inclusive.
- D. Basis for payment:
 - 1. Unit Price: If the work of this section is so designated to be paid, the Contractor will be paid the Contract Unit Price for the calculated quantity of material provided as shown on the Drawings and as specified herein.
 - a. Additional payments for increased quantities, labor or equipment usage will only be allowed if a change order is warranted due to a change in project scope or for unforeseen conditions, as determined by the Project Engineer, in accordance with the provisions of the General Conditions of the Contract.

1.02 QUALITY ASSURANCE:

- A. Codes and Standards: Perform all excavation work in compliance with applicable requirements of governing authorities having jurisdiction.
- B. Safety: All excavation work and methods of construction shall conform to the State of Iowa Bureau of Labor and all OSHA Standards.

1.03 JOB CONDITIONS:

- A. Site information shown on the Drawings regarding existing conditions is of a general nature. Visit the site and be familiar with existing conditions.
- B. Observe weather conditions. Attempt no work in frozen conditions without the approval of the DNR Construction Inspector.

1.04 PROTECTION OF PERSONS AND PROPERTY:

- A. Protect from damage existing buildings, walks, paving, fencing, sod, and other items noted to remain. Maintain bench marks, monuments, property stakes, and other reference points.
- B. Protect existing underground utilities to remain. Notify the DNR Construction Inspector of underground utilities or structures encountered but not indicated on drawings.
 - 1. Contractor responsibilities: Correcting damage caused to existing construction, utilities, surfacing, and other items noted to remain at no additional expense to the Owner.
- C. Barricade open excavations occurring as part of this work and provide warning lights.

1.05 EXPLOSIVES:

- A. The use of explosives is not permitted.

PART 2 - PRODUCTS

2.01 GENERAL FILL AND EMBANKMENT MATERIAL:

- A. Materials to be incorporated in the top 12 inches of earth embankment or general fill shall be earthy materials, free from stones larger than 2 inches, broken concrete, roots, or other materials that would significantly affect scarifying, compacting and finishing the subgrade. It is anticipated that the majority of excavation material from the required excavation will be acceptable for this use. Obtain approval of fill material prior to any placement from the DNR Construction Inspector.

2.02 STRUCTURAL BACKFILL MATERIAL:

- A. Structural backfill material shall consist of a natural sand or a mixture of sand with gravel, crushed stone, or other broken fine material to fill all voids in coarser material. The maximum size of any gravel, stone, or broken or fragmented material shall be of such size that 100 percent passes a 6-inch sieve. The liquid limit of the material shall not be greater than 25 and the plasticity index shall not be more than 6. The portion of the material which passes a No. 4 sieve shall conform to the following requirements:

Sieve Size	Percentage By
	Weight Passing
No. 4	100
No. 40	Not more than 75
No. 100	Not more than 15
No. 200	Not more than 8

- B. The material shall be capable of being compacted to 95 percent maximum density without undue weaving and heaving as defined by ASTM D698, Method D.
- C. Obtain approval of fill material prior to any placement from the DNR Construction Inspector.

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2.03 GRANULAR DRAINAGE FILL MATERIAL:

- A. Granular drainage fill for use under concrete slabs and walks where shown on the Drawings shall consist of granular, free--draining material, consisting of clean bank run gravel or crushed stone of full range of sizes. Maximum size of aggregate shall be 3/4 inch. 15 to 50% of that portion of weight of fill shall pass the No. 4 sieve.

2.04 TOPSOIL:

- A. Topsoil: Friable clay loam surface soil reasonably free of subsoil, clay lumps, stones and other objects over two inches in diameter, and without weeds, roots and other objectionable materials.

PART 3 - EXECUTION

3.01 SITE CLEARING:

- A. General: Remove vegetation, improvements, or obstructions interfering with installation of new construction. Removal includes digging out of stumps, roots, boulders and any other necessary items, the removal of which is not covered in the work of another section.
- B. Clearing and Grubbing: Clear site of trees, shrubs, and other vegetation, except those indicated or directed to be left standing.
 - 1. Completely remove stumps, roots, boulders and other debris protruding through the ground. Use only hand methods for grubbing inside drip line of trees indicated to be left standing.
 - 2. Depressions: Fill depressions caused by clearing and grubbing operations with satisfactory soil materials, unless further excavation work is required or indicated.

3.02 LAYING OUT WORK:

- A. Unless otherwise noted, DNR surveyor will locate new construction, set slope and grade stakes, and otherwise fully lay out work. Contractor will provide intermediate staking to maintain proper grades and control, check existing grades at site against grades or contours indicated on Drawings, and report any differences to Project Engineer before beginning of grading.
- B. Preserve stakes and markers. Replace at no cost to the Owner stakes or markers carelessly or willfully damaged by operations. Assume responsibility for accuracy of lines, grades, and dimensions.

3.03 STRIPPING AND SALVAGING OF TOPSOIL:

- A. Preparation: Mow or otherwise remove weeds, grass and other vegetation on entire area expected to be disturbed by the work of this section.
- B. Sod: Shred sod by shallow plowing, blading or disking throughout the entire area.

- C. Excavation of topsoil: Excavate topsoil throughout the entire prepared area to a depth of 12 inches and stockpile where designated by DNR Construction Inspector.

3.04 DEWATERING:

- A. Dewatering System: Provide, maintain and operate sufficient well points, headers, pumps, trenches, and sumps to keep all excavations for structures free from water at all times. Submit proposal to the DNR Construction Inspector for review prior to construction.
- B. Surface Runoff: Grading shall be controlled around the excavation to prevent surface water from running into the excavations for the structure.
- C. Saturated Foundations: Prior to placing any concrete for foundations, remove soils in footing excavation that have become saturated with surface water.

3.05 EXCAVATION - GENERAL:

- A. General: General excavation consists of removal of materials of whatever nature, including boulders smaller than 1 cubic yard in volume, required for the construction of structures, roads, and walks. The method of excavating shall be at the Contractor's option, exercising great care to leave the final grade in an undisturbed condition. If final grade is disturbed, it shall be restored to requirements and to the satisfaction of the DNR Construction Inspector. Prior to placing any concrete for footings and foundation work, the Contractor shall notify the DNR Construction Inspector to inspect the excavation and shall obtain approval to proceed with the pour.
- B. Frozen Ground: Provide frost protection for all structural excavation work. Do not place concrete for foundation work on frozen ground.
- C. Protection of Existing Work: Protect existing work, including underground utilities and piping, from damage caused by excavation work. Repair any damage to existing work, utilities, or piping at Contractor's expense.
- D. Storage of Fill Materials: Store excavated fill material away from excavations to avoid slides. Deposit excess earth on site, where directed by DNR Construction Inspector.
- E. Removal of Unsuitable Materials: Cross-sectional dimensions and depths shown on Drawings shall be subject to such changes as may be found necessary by the DNR Construction Inspector to secure foundations free from soft, weathered, shattered and loose or other objectionable materials. Remove unsuitable material encountered and replace with granular materials from established pits satisfactory to the DNR Construction Inspector. Compact granular materials to at least 95 percent of maximum density.
 - 1. When the excavation of unsuitable materials and replacement with granular fill material directed by the DNR Construction Inspector is found to be above normal expectations, it will be paid for at the unit prices listed in the Contractor's submitted cost breakdown. What constitutes normal expectations will be determined by the Project Engineer. The Project Engineer's decision will be final.
- F. Disposal of Excavated Materials: Materials free from sticks, roots, and other objectionable material may be used on site as directed by the DNR Construction Inspector.

1. Remove excavated materials not suitable for fill as directed by the DNR Construction Inspector.

3.06 PLACEMENT OF EMBANKMENT MATERIAL:

- A. Deposit loose material in horizontal layers of not more than eight (8) inches in depth. Provide surface drainage of installed embankment material at all times during construction. Do not place embankment material on frozen ground nor use any frozen embankment material during construction.
- B. Smooth out deposited material to a uniform depth using suitable motor patrol, bulldozer, or self-propelled, tamping-type roller with blade attachment. Continue the initial smoothing and leveling during compaction to provide a surface free of ruts and other irregularities.
- C. Compaction: The desired compaction is to be obtained by the operation of an approved tamping type roller. Compaction will be considered in compliance with a minimum of one roller pass per inch depth of each lift, and continuing until the roller is supported on its tamping feet, as determined by the DNR Construction Inspector.
- D. Should a moisture problem be encountered in compacting the material, the manipulation necessary to incorporate water or to dry the material shall be considered incidental to embankment construction.

3.07 STRUCTURAL EXCAVATION:

- A. Excavate to elevations and dimensions indicated on the Drawings; allow additional space as required for construction operations and inspection.
- B. Remove all existing construction encountered within the excavation to a depth of 6 inches below the indicated elevation of footings and subgrades to receive floor slabs, walks, and paving.
- C. If suitable bearing is not encountered at depth indicated on the Drawings for foundations, immediately notify the DNR Construction Inspector and do not proceed until instructions are given and necessary measurements made for the purpose of establishing additional volume of excavation.
- D. Excavate last 4 inches by hand, if machines are used for excavation.
- E. Fill with concrete, at Contractor's expense, unauthorized excavation carried below bottom of foundation levels shown.
- F. The DNR Construction Inspector will inspect and approve the bottoms of all excavations prior to concrete placement.

3.08 STRUCTURAL BACKFILL:

- A. Start backfill around foundations not less than 24 hours nor more than seven (7) days after application of waterproofing. Backfill walls and piers to approximately the same elevation on each side to equalize pressure.

- B. Compact structural backfill to same requirements as construction of embankments, Section 3.06.

3.09 PLACING BACKFILL ADJACENT TO WALLS AND FOOTINGS:

- A. Deposit fill on each side of piers, walls and free standing structures simultaneously to approximately the same elevation. Protect below grade waterproofing, dampproofing and insulation with a single thickness of 1/2" fiberboard, 1/8" asphalt impregnated board or other approved means. Place fill in workable condition, free of clods, frost, or debris, in 8" lifts, and thoroughly compact each lift with mechanical tamper.
- B. Do not operate heavy equipment for spreading and compacting backfill closer to any wall than a distance equal to the height of the backfill above the top of the footings. Backfill adjacent to walls shall be compacted to the same density as the adjacent fill with a small vibratory or hand tamping compactor.

3.10 PREPARATION OF EARTH SUBGRADE FOR CONCRETE:

- A. When excavating for footings or bottom mat slabs to be cast on native soil, excavate to final grade in a manner so as to not disturb the existing soil. If the soil is disturbed, compact it to the satisfaction of the DNR Construction Inspector. If the soil is not capable of compaction to the satisfaction of the DNR Construction Inspector, remove the disturbed material, and replace it with thoroughly compacted structural backfill material. Do not place concrete on surfaces that are muddy, frozen or contain frost. If during the course of construction, bottom surfaces become muddy or saturated with water, remove the undesirable material and replace with compacted structural backfill as indicated above.

3.11 PLACING PIPE IN FILL:

- A. When it is necessary to place pipe culverts, drain piping, or other appurtenances in general or structural backfill, bring the fill up to at least one foot above the top of the pipe or appurtenances. Do not leave areas of backfill depressed to allow for trenches. After the compacted fill is complete, excavate for the pipe or appurtenances. Backfill materials and compaction are to conform to the fill in which it is placed.

3.12 TRIMMING AND CLEAN UP:

- A. Final trimming and cleaning up shall consist of work as follows:
 - 1. Smooth out all irregularities , fill all washouts, make slopes uniform, slightly rounded at top and bottom, and compact the entire area of the fill to the required lines, grades and cross sections, within one-tenth foot (0.1) above or below the established grade.
 - 2. Where additional material is required, provide similar fill as the one used. Obtain such material from source approved by the DNR Construction Inspector.
 - 3. When work is completed, remove and dispose of surplus material including stumps, trees and brush, and leave premises in a condition acceptable to the DNR Construction Inspector.

3.13 FINISH GRADING:

- A. After completion of rough grading, scarify areas to receive topsoil to finish grade shown. Deposit topsoil to a minimum depth of 4", as directed by the DNR Construction Inspector. In areas with existing topsoil, no additional topsoil is required. Grade topsoil to eliminate water pockets or irregularities. Eliminate soil lumps and round off abrupt changes in slope. Spread excess earth on site as directed by DNR Construction Inspector. Topsoil removal, stockpiling, and deposit will be considered incidental to earthwork, and will not be paid for separately.

3.14 SITE RESTORATION:

- A. All disturbed areas within the boundaries of this project (including borrow areas) not specifically receiving a finished surface are to be seeded in accordance with Section 02930.

END OF SECTION 02200

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: The work covered by this Section consists of furnishing all material, labor and equipment necessary or required to do the trenching, backfilling and compacting needed for the proper and complete installation of underground utilities as shown on the Drawings.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements.

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Section 16000 - Electrical

1.02 QUALITY ASSURANCE:

- A. Qualifications: Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts, and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. Codes and Standards: Perform all work of this Section in compliance with applicable requirements of governing authorities having jurisdiction.
 - 1. In addition to complying with the pertinent codes and regulations of other governing agencies, comply with applicable requirements of Iowa Department of Natural Resources Authorized Technical Specifications for Water and Sewer Projects, latest edition.
- D. Safety: All trenching, excavating and methods of construction shall conform to the state of Iowa Bureau of Labor and all OSHA standards.
- E. Where conflicts arise between Contract Documents and Referenced Codes and Standards, the latter shall prevail, unless Contract Documents are more stringent.
 - 1. Bring all conflicts to the attention of the DNR Construction Inspector.

1.03 PROJECT/SITE CONDITIONS:

- A. Environmental Requirements:
 - 1. Protect existing trees and other vegetation indicated or as directed by DNR Construction Inspector to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling

construction materials or excavated materials within drip line, excess foot traffic or vehicular traffic, or parking of vehicles within drip line.

2. Provide temporary guards to protect trees and vegetation to be left standing.
3. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to the DNR Construction Inspector.

B. Existing Conditions:

1. Site information indicated on the Drawings regarding existing conditions, is of a general nature.
 - a. Visit the site and become familiar with existing conditions.
2. Observe weather conditions.
 - a. Attempt no work in frozen conditions without the approval of the DNR Construction Inspector.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Fill and Backfill Materials:

1. Provide soil materials free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension, and with not more than 15 percent of the rocks or lumps larger than 2-3/8" in their greatest dimension.
2. Fill material is subject to the approval of the DNR Construction Inspector, and is that material removed from excavations or imported from off-site borrow areas, predominantly granular, nonexpansive soil free from roots and other deleterious matter.
3. Do not permit rocks having a dimension greater than 1" in the upper 12" of fill.
4. Cohesionless Material Used for Backfill: Provide sand free from organic material and other foreign matter, and approved by the DNR Construction Inspector.

- B. Provide other materials, not specifically described but required for a complete and proper installation, selected by the Contractor subject to the approval of the Project Engineer.

PART 3 - EXECUTION

3.01 PREPARATION:

A. Protection of Persons and Property:

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1. Barricade open holes and depressions occurring as part of the work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.

B. Protection of Utilities:

1. Unless shown to be removed, protect active utility lines shown on the Drawings or otherwise made known to the Contractor prior to trenching.
 - a. If damaged, repair or replace at no additional cost to the Owner.
2. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.
3. If service is interrupted as a result of work under this Section, immediately restore service by repairing the damaged utility at no additional cost to the Owner.
4. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Project Engineer and secure instructions.
5. Do not proceed with permanent relocation of utilities until written instructions are received from the Project Engineer.

C. Dewatering:

1. Remove all water, including rain water, encountered during trench and sub-structure work to an approved location by pumps, drains, and other approved methods.
2. Keep trenches and site construction area free from water.

D. Dust Control: Use means necessary to prevent dust becoming a nuisance to the public, at neighbors, and to other work being performed on or near the site.

E. Maintain access to adjacent areas at all times.

3.02 TRENCHING:

A. Provide sheeting and shoring necessary for protection of the work and for the safety of personnel.

1. Prior to backfilling, remove all sheeting.
2. Do not permit sheeting to remain in the trenches except when, in the opinion of the DNR Construction Inspector, field conditions or the type of sheeting or methods of

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construction such as use of concrete bedding are such as to make removal of sheeting impracticable.

- a. In such cases, the Project Engineer, upon recommendation from the DNR Construction Inspector, may permit portions of sheeting to be cut off and remain in the trench.

B. Open Cut:

1. Excavate for utilities by open cut.
2. If conditions at the site prevent such open cut, and if approved by the Project Engineer, trenching may be used.
3. Short sections of a trench may be tunneled if, in the opinion of the Project Engineer, the conductor can be installed safely and backfill can be compacted properly into such tunnel.
4. Where it becomes necessary to excavate beyond the limits of normal excavation lines in order to remove boulders or other interfering objects, backfill the voids remaining after removal of the objects as directed by the DNR Construction Inspector.
5. When the void is below the subgrade for the utility bedding, use suitable earth materials and compact to the relative density directed by the DNR Construction Inspector, but in no case less than 90 percent.
6. When the void is in the side of the utility trench or open cut, use suitable earth or sand compacted or consolidated as approved by the DNR Construction Inspector, but in no case to a relative density less than 80 percent.
7. Remove boulders and other interfering objects, and backfill voids left by such removals, at no additional cost to the Owner.
8. Excavating for appurtenances:
 - a. Excavate for manholes and similar structures to a distance sufficient to leave at least 12" clear between outer surfaces and the embankment or shoring that may be used to hold and protect the banks.
 - b. Overdepth excavation below such appurtenances, unless directed, will be considered unauthorized.
 - c. Fill unauthorized overdepth excavation with sand, gravel, or lean concrete as directed by the DNR Construction Inspector, and at no additional cost to the Owner.

C. Trench to the minimum width allowed for proper installation of the utility, with sides as nearly vertical as possible.

1. Accurately grade the bottom to provide uniform bearing for the utility.

D. Depressions:

1. Dig bell holes and depressions for joints after the trench has been graded.
 - a. Provide uniform bearing for the pipe on prepared bottom of the trench.
2. Except where rock is encountered, do not excavate below the depth indicated or specified.
3. Where rock is encountered, excavate rock to a minimum overdepth of 4" below the trench depth indicated.

E. Where utility runs traverse public property or are subject to governmental or utility company jurisdiction, provide depth, bedding, cover, and other requirements as set forth by legally constituted authority having jurisdiction, but in no case less than the depth shown in the Contract Documents.

F. Where trenching occurs in existing lawns, remove turf in sections, keep damp and replace turf upon completion of the backfilling.

G. Cover:

1. Provide minimum trench depth indicated below to maintain a minimum cover over the top of the installed item below the finish grade or subgrade:
 - a. Areas subject to vehicular traffic:
 - (1) Sanitary sewers: 48"
 - (2) Storm drains: 36"
 - b. Areas not subject to vehicular traffic:
 - (1) Sanitary sewers: 30"
 - (2) Storm drains: 18"
 - c. All areas:
 - (1) Water lines: 60"
 - (2) Natural gas lines: 24"
 - (3) Electrical cables: 42"
 - (4) Electrical ducts: 36"
 - d. Concrete encased:
 - (1) Pipe sleeves for water and gas lines: 24"

(2) Sanitary sewers and storm drains: 12"

(3) Electrical ducts: 24"

2. Where utilities are under a concrete structure slab or pavement, the minimum depth need only be sufficient to completely encase the conduit or pipe sleeve, and electrical long-radius rigid metal conduit riser, provided it will not interfere with the structural integrity of the slab or pavement.
3. Where the minimum cover is not provided, encase the pipes in concrete as indicated.
 - a. Provide concrete with a minimum 28-day compressive strength of 3,000 psi.

3.03 BEDDING:

- A. Provide bedding as indicated on the Drawings and as specified herein.

3.04 BACKFILLING:

A. General:

1. Do not completely backfill trenches until required pressure and leakage tests have been performed, and until the utilities systems as installed conform to the requirements specified in the pertinent Section of these Specifications.
2. Except as otherwise specified, or directed for special conditions, backfill trenches to the ground surface with selected material approved by the DNR Construction Inspector.
3. Re-open trenches which have been improperly backfilled, to a depth as required for proper compaction.
4. Refill and compact as specified, or otherwise correct to the approval of the DNR Construction Inspector.
5. Do not allow or cause any of the work performed or installed to be covered up or enclosed by work of this Section prior to required inspections, test, and approvals.
6. Should any of the work be so enclosed or covered up before it has been approved, uncover all such work and, after approvals have been made, refill and compact as specified, all at no additional cost to the Owner.

B. Lower Portion of Trench:

1. Deposit approved backfill and bedding material in layers of 6" maximum thickness, and compact with suitable tampers of the density of the adjacent soil, or grade as specified herein, until there is a cover of not less than 14" over sewers and 12" over other utility lines.
2. Take special care in backfilling and bedding operations not to damage pipe and pipe coatings.

C. Remainder of Trench:

1. Except for special materials for pavements, backfill the remainder of the trench with material free from stones larger than 6" or 1/2 the layered thickness, whichever is smaller, in any dimension.
2. Deposit backfill material in layers not exceeding the thickness specified, and compact each layer to the minimum density directed by the DNR Construction Inspector.

D. Adjacent to Buildings: Mechanically compact backfill within ten feet of buildings.

E. Consolidation of backfill by jetting with water may be permitted, when specifically approved by the DNR Construction Inspector, in areas other than building and pavement areas.

3.05 PIPE JACKING:

- A. Unless so or otherwise required, the Contractor may, at his option, install steel pipe casings, tongue-and-groove reinforced concrete pipes, and steel pipes under existing roads or pavements by jacking into place using procedures approved by the governmental agencies having jurisdiction and approved by the DNR Construction Inspector.

3.06 TUNNELING OPERATIONS:

- A. Unless so or otherwise required, the Contractor is allowed the option to tunnel pipes into position using procedures approved by the Project Engineer/DNR Construction Inspector and the governmental agencies having jurisdiction.

3.07 FIELD QUALITY CONTROL:

A. Tests: Test for displacement of sewer and storm drains.

1. Check sewers and storm drains to determine whether displacement has occurred after the trench has been backfilled to above the pipe and has been compacted as specified.
2. Flash a light between manholes or, if the manholes have not yet been constructed, between the locations of the manholes, by means of a flashlight or by reflecting sunlight with a mirror.
3. If the illuminated interior of the pipeline shows poor alignment, displaced pipes, or other defects, correct the defects to the specified conditions and at no additional cost to the Owner.

B. Inspection: The DNR Construction Inspector will inspect and approve open cuts and trenches before installation of utilities, and the following:

1. Assure that trenches are not backfilled until all tests have been completed.
2. Check backfilling for proper layer thickness and compaction.
3. Verify that test results conform to the specified requirements, and that sufficient tests are performed.
4. Assure that defective work is removed and properly replaced.

END OF SECTION 02220

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: The work covered by this section consists of furnishing all materials, labor, and equipment necessary or required to do the grading, placing and compacting of granular base materials as shown on the Drawings and as specified herein.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 02200A - Earthwork With M & D Compaction

- C. Measurement: Measure the quantity of material delivered in tons.
 - 1. Weigh on accurate scales designed for weighing loaded trucks.
 - 2. Load vehicles to insure against loss of material between the scales and the point of delivery.
 - 3. No deductions will be made for the weight of moisture naturally occurring in the material.
 - 4. Material will not be deposited and spread until the scale weight ticket is delivered to the DNR Construction Inspector and the weight of material verified.
 - a. Include the Contractor's name, date of delivery, designation of mixture, load identification number, gross, tare, and net weights of load and any other data which would aid in the identification of the load.
 - b. Only weight tickets issued by a state licensed scale will be accepted.
- D. Method of Payments:
 - 1. Contract Unit Price: When payment for the work of this section is so designated, the Contractor will be paid the Contract Unit price per ton.
 - a. Material will not be deposited and spread until the scale weight ticket is delivered to the inspector and the weight of material verified.
 - b. In the event that the estimated quantity is larger than the quantity provided, pay the Owner a deduct for the difference in cost for both quantity and labor.
 - c. Additional payments for increased quantities or labor will only be allowed if a change order is warranted due to a change in project scope or for unforeseen

conditions, as determined by the Project Engineer, in accordance with the provision of the General Conditions of the Contract.

2. Lump Sum Payment: If this method of payment is so designated, the Contract Documents provide for payment of a lump sum bid amount for the entire project, part of which is the work of this contract, or a lump sum payment for the work of this section as indicated.
 - a. The quantity of material provided will be verified by scale tickets and compared to the estimated quantity provided as part of the Contractor's Price Breakdown.
 - b. In the event that the estimated quantity is larger than the quantity provided, the Contractor shall pay the Owner a deduct for the difference in cost for both quantity and labor.
 - c. Additional payments for increased quantities or labor will only be allowed if a change order is warranted due to a change in project scope or for unforeseen situations, as determined by the Project Engineer, warranting additional material and labor to accomplish the original work of this section.
3. The Owner will make no additional payments for additional material or labor to correct deficiencies, shortages or mistakes by the Contractor.

1.02 REFERENCES:

- A. Standards of materials and construction shall conform with the Standard Specifications for Highway and Bridge Construction, Series of 2009 of the Iowa Department of Transportation:

Section 1106 - Control of Material
Section 2111 - Granular Subbase
Section 4109 - Aggregate Gradation
Section 4121 - Granular Subbase Material

1.03 CONTROL OF MATERIALS:

- A. General: Use only materials as specified for this section and tested and approved for use by the DNR Construction Inspector in accordance with the applicable portions of 2009 Series, I.D.O.T. Section 1106.
- B. Samples and Tests: Submit samples of materials to be used to the DNR Construction Inspector in advance of anticipated use to avoid construction delays.
 1. Test and inspect and obtain approval of the DNR for each consignment of material before it is incorporated in the work.
 2. Unless otherwise designated elsewhere provide samples, and tests, and apply a basis for acceptance in accordance with the current AASHTO "Standard Specifications for Transportation, Material and Methods of Sampling and Testing" including published interim standards.

GRANULAR SUBBASE
02505-2

- C. Field Testing: Testing of materials and workmanship will continue throughout the project as conducted by the DNR Construction Inspector.
 - 1. Cooperate in these tests in any way needed to obtain the required data and samples.
- D. Unacceptable Materials: Unacceptable materials will be rejected as follows:
 - 1. The DNR field inspector will consider unacceptable and reject any material not conforming to the specified requirements.
 - 2. The DNR Inspector will also reject previously accepted material, delivered to the site, which have become damaged before actual incorporation into the work.
 - 3. Promptly remove from the site all rejected material.
 - 4. Unless otherwise authorized by the Project Engineer, do not incorporate corrected rejected material into the work.

1.05 JOB CONDITIONS:

- A. Survey job conditions prior to commencing work.
 - 1. Bring any discrepancies between existing work and the Drawings and Specifications to the attention of the Project Engineer/DNR Construction Inspector.
- B. Observe weather conditions.
 - 1. Attempt no work in frozen conditions without written approval from the DNR Construction Inspector.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Provide material in accordance with 2009 Series, IDOT Standard Specifications Section 4121.
- B. Class A Crushed Stone: Provide Class A crushed stone consisting of a uniform mixture of coarse and fine particles produced by crushing ledge rock, predominantly limestone, dolomite, or quartzite.
 - 1. Provide material meeting the requirement of IDOT Standard Specifications Section 4121 for graduation number 11 with a maximum of 4 percent mud balls and a minimum of 4 percent passing No. 200 sieve.
 - 2. The percentage of wear when tested in accordance with AASHTO T96, grading B, shall not exceed 45.

3. Gradation: Provide material, which when tested, will meet the requirements of IDOT gradation No. 11 as follows:

% Passing	Sieve Size
100	1 inch
97-100	3/4 inch
30-75	No. 4
15-45	No. 8
6-16	NO. 200

PART 3 - EXECUTION

3.01 GENERAL:

- A. Accomplish the work of this section in accordance with the applicable portions of the 2009 Series, IDOT Standard Specification for Highway and Bridge Construction.

3.02 PREPARATION OF SUBGRADE:

- A. Preparation and correction of Subgrade: Conform to 2009 Series, I.D.O.T. Section 2111.
1. Blade loose granular material present on the roadbed into windrow and store on the shoulder area, then correct the subgrade to required profile and cross section.
 - a. Wet and consolidate material moved in this operation so that the subgrade on which the next course is placed is smooth, firm, compacted earth.
 2. Profile and Cross section requirements:
 - a. Check the cross section with an accurate template extending at least halfway across the width of the subgrade and correct deviations of more than one (1) inch from the template.
 - b. Remove dips or humps from profile to provide a good riding surface.

3.03 PLACING OF CRUSHED STONE COURSE:

- A. Construct base course using crushed rock top course material as defined by IDOT 2009 Series. Place the course in accordance with applicable sections of the IDOT Standard Specifications for Granular Surfacing, Standard Compaction as defined by the IDOT Standard Specifications.

3.05 CLEAN UP:

- A. Upon completion of construction, remove all excess materials and construction debris, and restore any damage done to existing buildings or landscape.

END OF SECTION 02505

GRANULAR SUBBASE
02505-4

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: The work covered by this section consists of furnishing all materials, labor, and equipment necessary or required to do the grading, placing, and compacting of fill materials and surfacing parking area and walk paving as shown on the Drawings and as specified herein.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not limited to, the following:

Section 03100 - Concrete Form Work
Section 03200 - Concrete Reinforcement
Section 03300 - Cast-In-Place Concrete

- C. Measurement: Measure the quantity of material installed, to the nearest ton.
- D. Method of Payment:
 - 1. Contract Unit Price: When payment for the work of this section is so designated, the contractor will be paid the Contract Unit price per ton.
 - a. In the event that the estimated quantity is larger than the quantity provided, pay the Owner a deduct for the difference in cost for both quantity and labor.
 - b. Additional payments for increased quantities or labor will only be allowed if a change order is warranted due to a change in project scope or for unforeseen conditions, as determined by the Project Engineer, in accordance with the provisions of the General Conditions of the Contract.
 - 3. The Owner will make no additional payments for additional material or labor to correct deficiencies, shortages, or mistakes by the Contractor.

1.02 REFERENCES:

- A. Standards of materials and construction shall conform with the Standard Specifications for Highway and Bridge Construction, Series of 2009, of the Iowa Department of Transportation.

1.03 DELIVERY, STORAGE, AND HANDLING:

- A. General: Use only materials as specified for this section as tested and approved for use by the DNR Construction Inspector in accordance with the applicable portions of 2009 Series, I.D.O.T. Section 1106.

- B. Samples and Tests: Submit samples of materials to be used to the DNR Construction Inspector in advance of anticipated use to avoid construction delays. Submit samples and tests in accordance with 2009 Series, I.D.O.T. Section 1106.02.
- C. Field Testing: Testing of materials and workmanship will continue throughout the project as conducted by the DNR Construction Inspector. Cooperate in these tests in any way needed to obtain the required data and samples.
- D. Unacceptable Materials: Unacceptable materials will be rejected in accordance with 2009 Series, I.D.O.T. Section 1106.04.

1.04 PROJECT/SITE CONDITIONS:

- A. Environmental Requirements: Observe weather conditions. Attempt no work in frozen conditions without written approval from the DNR Construction Inspector.
- B. Existing Conditions: Review job conditions prior to commencing work. Bring any discrepancies of existing work with the Drawings and Specifications to the attention of the DNR Construction Inspector.
- C. If paving work cannot be completed because of weather conditions, then place base course and delay wearing course to be placed when directed by the DNR Construction Inspector. Fill any ruts, depressions, washouts, etc. in the base course and bring to grade prior to placing wearing course as directed by the DNR Construction Inspector.

PART 2 - PRODUCTS

2.01 ASPHALTIC CONCRETE PAVING MATERIAL:

- A. Provide materials in accordance with 2009 Series, I.D.O.T. Section 2203 and Section 2303.

2.02 CONCRETE WALK AND SLAB MATERIALS:

- A. Provide materials in accordance with Section 03300.

2.03 REINFORCING STEEL:

- A. Provide reinforcing steel in accordance with Section 03200.

2.04 EXPANSION JOINT FILLER:

- A. Provide expansion joint filler in accordance with Section 03300.

2.05 EXPANSION JOINT SEALER:

- A. Provide expansion joint sealer in accordance with Section 03300.

2.06 CONCRETE MIX DESIGN:

- A. Air entrained, 3,500 PSI, compressive strength as specified in Section 03300 with slump of two inches to four inches.

2.07 WHEEL STOPS:

- A. Provide precast concrete wheel stops or curb, 3500 psi, fully reinforced complete with suitable anchorage device as required for positive and permanent attachments to parking surfaces.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. Preparation of Subgrade: Conform to 2009 Series, I.D.O.T. Section 2109. If unsuitable subgrade materials are encountered, remove this material to a depth as indicated by the DNR Construction Inspector and replace with suitable ballast material.
- B. Concrete Forms: Forms for concrete surfacing: wood or metal, staked so they are firmly held to line and grade. Make upper edge of form level with finish grades. Do not use twisted, warped, or broken forms. Coat forms before placing concrete. Lap reinforcing mesh six inches. Leave forms in place 12 hours minimum unless directed otherwise.
- C. Asphaltic Concrete and Paving:
 - 1. General: Plant mix asphaltic concrete in accordance with the material and placing method requirements of 2009 Series, IDOT Section 2303 for Type A and/or Type B Asphalt Cement Concrete.
 - 2. Asphaltic Concrete Paving: Use asphaltic concrete paving on all roadway, service and parking areas except those specifically designated as walkways.
 - 3. Design Mixes: Type "A" asphaltic concrete mixture size shall be 1/2", and Type "B" asphaltic concrete mixture size shall be 3/4". Contractor to submit asphalt mix design to Project Engineer for approval prior to commencing work on the project.
- D. Installation of Wheel Barrier: Construct wheel barriers where shown on the Drawings. Units shall be set in one-half inch nominal cement grout. If modular units are used, install with open joints between blocks.
- E. Concrete Curbing: Place curbing where shown on the Drawings. Construct in accordance with I.D.O.T. Section 2512 Portland Cement Concrete Curb and Gutter. Coordinate efforts with those installing catch basins and curb inlets as shown on the Drawings.
- F. Concrete Walks and Aprons:
 - 1. Concrete Surfacing: Construct exterior concrete walks and aprons where shown on the Drawings. Construct in accordance with the applicable portions of the I.D.O.T. Portland Cement Concrete Sidewalks, Section 2511. Install expansion joints at transitions of walks and aprons in addition to those locations specified in I.D.O.T. Section 2511. Dowel drivable apron slabs into interior slabs as shown on the Drawings.

WALK, ROAD AND PARKING PAVING
02510-3

2. Concrete Placement: Do not place concrete over frozen subbase, or ice-coated forms. Tamp and spade or vibrate concrete enough to compact firmly during placement.
 3. Concrete: Ambient air temperature shall be between 40 and 70 degrees Fahrenheit when placed. In cold weather, heat materials to obtain required temperature. In hot weather, a water-reducing retarder may be used, if approved by the Project Engineer. Erect tight and plumb bulkheads, when stopping placement and when forming construction joints. Brush on new cement when pouring against hardened concrete.
 4. Concrete Apron: 6" thick minimum.
 5. Expansion Joints: Install specified one-half inch (1/2") thick pre-molded expansion filler at abutting or intersecting construction and in expansion joints. Set top of joint filler within one inch (1") of slab surface. Hot pour joints to within one-fourth inch (1/4") of surface with specified joint sealer. Expansion joints shall be full slab depth.
 6. Control Joints: Score concrete with 1/4" x 1-1/4" deep control joints. Use straightedge guide when scoring joints. Where required depth of control joint cannot be made by scoring, cut joints with carborundum saw.
 7. Finishing: Finish apron with fiber broom after leveling and floating. Tool expansion and control joint edges to one-fourth inch (1/4") radius.
 8. Do not overwork concrete. Do not allow coarse aggregate to be visible in the final finish.
 9. Protecting and Curing: Protect concrete surfaces from rapid drying or wash by rain. Cure and seal immediately after finishing by applying two spray coats of membrane curing compound, in accordance with manufacturer's instructions, at the rate of 500 square feet, or less, per gallon, per coat. Unless otherwise directed by DNR Construction Inspector, do not open surfaced areas to traffic for seven (7) days after concrete placement. In cold weather, avoid opening surfaces where there is danger of de-icing salts from vehicles damaging concrete surface.
- K. Parking Stall Lines: Paint parking stall and directional lines on roadway and parking areas on the paving surface with traffic signal and striping paint. Conform with manufacturer's specification and recommendations for surface cleaning and paint application. Color of pavement markings to be as shown on the Plans

3.02 FIELD QUALITY CONTROL:

- A. Slump and Control Tests: Meet requirements of Section 03300 and I.D.O.T. Take one set of control test cylinders for every 50 cubic yards and minimum of one set of three cylinders for each day's pour.

3.03 CLEANING:

- A. Upon completion of construction, remove all excess materials and construction debris, and restore any damage done to existing buildings or landscape.

END OF SECTION 02510

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: Seedbed preparation and application of seed mixtures and fertilizer to all areas designated on the Drawings or all areas within the boundaries of this project having been disturbed by works of this project and not receiving finished surfacing, as determined by the DNR Construction Inspector and as specified herein.
- B. Related Sections: Drawings and General Provisions of the Contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 02200 - Earthwork

1.02 REFERENCES:

- A. Standards of materials and construction shall conform with the Standard Specifications for Highway and Bridge Construction, 2009 Series of the Iowa Department of Transportation.

1.03 QUALITY ASSURANCE:

- A. Codes and Standards: Perform all work of this section in accordance with the requirements of the "Standard Specifications" 2009 I.D.O.T. Section 2601.

1.04 PROJECT/SITE CONDITIONS:

- A. Environmental Requirement:
 - 1. Weather conditions shall be observed. Seeding shall be performed only during normal application periods, optimum temperature, moisture and climatic condition to promote germination and plan growth. Normal application periods are between March 1 and May 31 and between August 10 and September 30.
- B. Existing Conditions: Survey job conditions prior to commencing work. Bring any discrepancies between existing work and the Drawings and Specifications to the attention of the Project Engineer/DNR Construction Inspector.

1.05 SEQUENCING AND SCHEDULING:

- A. Properly coordinate the work of this section with all other trades.
- B. Do not start the work of this section until the work of all other trades has been completed unless otherwise approved by the DNR Construction Inspector.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. All topsoil used for seedbed shall be in accordance with Section 02200.
- B. All seeds shall be "redtag" quality or better supplied from the latest available crop, free of noxious weed seed and supplied in the following varieties and percentages of weight.
- C. Provide mixture of types and quantities as specified herein for seeding of areas designated by the Project Engineer, the DNR Construction Inspector as indicated on the Drawings, and as specified herein.

- 1. Class "A" Mixture: For areas to remain in semi-natural state where mowing is required only as a temporary control measure.

Fescue, Kentucky 31	25 lbs. per acre
Switchgrass (Blackwell)	8 lbs. per acre
Alfalfa (Northern Grown)	5 lbs. per acre
Birdfoot Trefoil (Empire)	4 lbs. per acre
Alsike Clover	4 lbs. per acre

- 2. Class "B" Mixture: For same situation as where Class "A" mixture is used but where a lighter mix is preferable.

Fescue, Kentucky 31	20 lbs. per acre
Switchgrass (Blackwell)	3 lbs. per acre
Alfalfa (Northern Grown)	4 lbs. per acre
Birdfoot Trefoil (Empire)	4 lbs. per acre
Alsike Clover	4 lbs. per acre

- 3. Class "C" Mixture: For area designated as fine seeded, lawns or other mowed grass areas.

Bluegrass, Kentucky	70%
Ryegrass, Perennial, Fineleaf	10%
Fescue Creeping Red	20%

- 4. Class "D" Mixture: For all areas, unless otherwise specified, where a prairie grass in natural state is required.

Big Bluestem	30 lbs. per acre
Switchgrass (Blackwell)	5 lbs. per acre
Sideoats Grama	5 lbs. per acre
Little Bluestem	5 lbs. per acre

- D. Seed is to be delivered on site in separate packaging for each individual type of seed within each mixture and mixed in the presence of the DNR Construction Inspector if required. Commercial mixture in the quantities as specified will be acceptable at the discretion of the DNR Construction Inspector, if these quantities are verifiable.
- E. Seed mixture for this project to be Class "A" mixture.

2.02 FUNGICIDE:

- A. All seeds for permanent seeding shall be treated with a non-mercurial fungicide (75% concentration or equivalent) at the rate of 5-1/2 ounces per 100 pounds of seed.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.02 SEEDBED PREPARATION:

- A. The area to be seeded shall be raked or graded to fill washes or gullies. Pick up and dispose of all debris, including stones, boulders, logs, stumps, or other foreign material that will interfere with the seeding operation.

3.03 FERTILIZER APPLICATION:

- A. Spread fertilizer over the area at the rate of 750 pounds per acre of 15-15-15 (or equivalent).
- B. Unless otherwise indicated, spread all fertilizer with a mechanical spreader which will secure a uniform rate of application.
- C. Spread fertilizer after the preliminary preparation of seedbed and prior to the sowing of any seeds.
- D. Disk the fertilizer and roll the area prior to seeding.
- E. On area inaccessible to field machinery, spread fertilizer after preparation of the seedbed and thoroughly rake into the soil.
- F. Application of fertilizer in combination with seeding by hydraulic seeder as specified in I.D.O.T. Section 2601.04H will be acceptable at the discretion of the DNR Construction Inspector.

3.04 SEED APPLICATION:

- A. Preparation: Mix all seeds specified for this project thoroughly at the project site prior to placing in spreading equipment.
- B. On all areas accessible to field machinery, all grass seeds may be sown with a gravity, cyclone or hydraulic seeder as specified herein. On areas inaccessible to field machinery, the use of hand-cyclone seeder will be permitted.
- C. Apply seed mixture at a rate of four pounds per 1,000 square feet, unless otherwise indicated, during fair, calm weather. One half of the seed mixture shall be sown in one direction and the remainder at right angles to the first sowing.

3.05 SEED APPLICATION IN MAINTAINED LAWNS:

- A. For maintained lawns to be seeded as part of this project, apply fertilizer prior to preparation of the seedbed.
- B. A rotary tiller will be required for preparation of the seedbed. The seedbed after tilling will be raked firm, smooth and free of clods, rocks and other debris.
- C. Roll the seedbed shall both before and after the application of seeds. Apply seeds over damp soil by broadcast seeding.
- D. Roll, seed, and fertilize by hand or with hand operated equipment in areas inaccessible to field equipment.

3.06 SPRING OVERSEEDING:

- A. Seedbed preparation will not be required provided the overseeding is applied when the ground is free from frost action after March 1 and before April 1 or as directed by the DNR Construction Inspector.

3.07 MOWING:

- A. When requested by the DNR Construction Inspector, mowing may be required prior to permanent seeding or anytime during the growing season.

3.08 MULCHING:

- A. All seeded areas are to be mulched unless otherwise designated in the contract documents.
- B. All areas requiring mulch are to be mulched as soon as seed is sown and final rolling is completed.
- C. Mulch is to be evenly and uniformly distributed and anchored into the soil. The application rate for reasonably dry material shall be approximately 1-1/2 tons of dry cereal straw, 2 tons of wood excelsior, or 2 tons of prairie hay per acre, or other approved material, depending on the type of material furnished.

LAWNS AND GRASSES
02930-4

1. All accessible mulched areas are to have mulch consolidated into the soil with a mulch stabilizer, and slope areas are to be tugged on the contour.
2. Crawler type or dual wheel tractors are to be used for the mulching operation. Equipment is to be operated in a manner to minimize displacement of the soil and disturbances of the design cross section.

END OF SECTION 02930

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: All labor, materials, and equipment required to construct, shore, and remove all forms to accommodate all concrete specified in Section 03300, Cast-In-Place Concrete, as shown on the Drawings, and as specified in other sections of these specifications.
- B. Related Sections: Drawings and General Provisions of the Contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:
 - Section 03200 - Concrete Reinforcement
 - Section 03300 - Cast-In-Place Concrete

1.02 REFERENCES:

- A. Safety: All formwork and methods of construction shall conform to the requirements of the state of Iowa Bureau of Labor and all OSHA Standards.
- B. A.C.I. 347.

1.03 SUBMITTALS:

- A. Provide concrete mix formula to Construction Inspector.
- B. Manufacturer's Data: Within 30 calendar days after award of the contract, submit manufacturer's data and installation instruction for proprietary materials including form coatings, ties and accessories, and manufacturer's form system if used.
- C. Shop Drawings: When requested by the DNR Construction Inspector or the Project Engineer for the purpose of explaining details or structural integrity, the Contractor shall submit those drawings requested prior to construction of the project.

1.04 QUALITY ASSURANCE:

- A. Formwork: Design of formwork is the responsibility of the Contractor.
- B. Standards: Comply with all applicable provisions of ACI 347.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Form Materials:

1. Construct formwork for exposed concrete surfaces with smooth-faced undamaged plywood, undented metal, or other panel-type materials acceptable to the DNR Construction Inspector, to provide continuous, straight, plumb, smooth cast surface, furnish in largest practical sizes to minimize number of joints.
2. Provide form material with sufficient thickness to withstand pressure of newly-placed concrete without reflection or bowing.

B. Form Ties:

1. Provide factory-fabricated, adjustable length removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete surfaces upon removal.
2. Provide ties so that portion remaining within concrete after removal of exterior parts is at least 1-1/2" from the outer concrete surface. Form ties shall not leave a hole larger than 1" diameter in the concrete surface.

C. Form Coating: Provide commercial formulated form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds.

2.02 DESIGN OF FORMWORK:

A. General:

1. Design, erect, support, brace, and maintain formwork so that it will safely support vertical and lateral loads that might be applied, until such loads can be supported by the concrete structure.
2. Carry vertical and lateral loads to ground by formwork system and in-place construction that has attained adequate strength for that purpose.
3. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation, and position.
4. Design forms and falsework to include assumed values of live load, dead load, weight of moving equipment operated on formwork, concrete mix, height of concrete drop, vibrator frequency, ambient temperature, foundation pressures, stresses, lateral stability, and other factors pertinent to safety of structure during construction.
5. Provide shore and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof.

6. Provide trussed supports when adequate foundations for shores and struts cannot be secured.
 7. Support form facing materials by structural members spaced sufficiently close to prevent objectionable deflection.
 8. Fit forms placed in successive units for continuous surfaces to accurate alignment, free from irregularities, and within allowable tolerances.
 9. Provide camber in formwork as required for anticipated deflections due to weight and pressures of fresh concrete and construction loads.
 10. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins.
- B. Earth Forms: Side forms of footings may be omitted and concrete placed directly against excavation only when requested by the Contractor and accepted by the DNR Construction Inspector. When omission of forms is accepted, provide additional concrete 1" on each side of the minimum design profiles and dimensions shown.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the substrate and conditions under which work of this section is to be performed, and correct unsatisfactory conditions which would prevent proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.02 ERECTION:

- A. General:
1. Construct forms complying with ACI 347, to the exact sizes, shapes, lines, and dimensions shown, and as required to obtain accurate alignment, location, grades, level, and plumb work in finish structures.
 2. Provide for openings, offsets, sinkages, keyways, recesses, moldings, reglets, chamfers, blocking, screeds, bulkheads, anchorages, inserts, and other features required. Use selected materials to obtain required finishes.
 3. Forms for openings and construction which accommodates installation by other trades whose materials and products must be fabricated before the opportunity exists to verify the measurements of adjacent construction which effects such installations, shall be accurately sized and located as dimensioned on the Drawings. In the event that deviation from the Drawing dimensions results in problems in the field, the Contractor shall be responsible for resolution of the conditions as approved by the Project Engineer, without additional expense to the Owner.

B. Fabrication:

1. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where the slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and assure ease of removal.
2. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Brace temporary closures and set tightly to temporary openings on forms in as inconspicuous locations as possible, consistent with design requirements. Form intersecting planes to provide true, clean-cut corners.

C. Falsework:

1. Erect falsework and support, brace and maintain it to safely support vertical, lateral, and asymmetrical loads applied until such loads can be supported by in-place construction. Construct falsework so that adjustments can be made for take-up and settlement.
2. Provide wedges, jacks, or camber strips to facilitate vertical adjustments. Carefully inspect falsework and formwork during and after concrete placement operations to determine abnormal deflection or signs of failure; make necessary adjustments to produce work of required dimensions.

D. Forms for Exposed Concrete:

1. Drill forms to suit ties used and to prevent leakage of concrete mortar around tie holes. Do not splinter forms by driving ties through improperly prepared holes.
2. Provide sharp, clean corners at intersecting planes, without visible edges or offsets. Back joints with extra studs or girts to maintain true, square intersections.
3. Use extra studs, walers, and bracing to prevent objectionable bowing of forms between studs and to avoid bowed appearance in concrete. Do not use narrow strips of form material which will produce bow.
4. Assemble forms so they may be readily removed without damage to exposed concrete surfaces.

E. Corner Treatment: Unless shown otherwise, form chamfers with 3/4" x 3/4" strips, accurately formed and surfaced to produce uniformly straight lines and tight edge joints on exposed concrete. Extend terminal edges to required limit and miter chamfer strips at changes in direction.

F. Control Joints: Locate as directed by DNR Construction Inspector or as indicated on the Drawings.

- G. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Verify size and location of openings, recesses and chases with the trade requiring such items. Accurately place and securely support items to be built into forms.
- H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before concrete is placed. Retighten forms immediately after concrete placement as required to eliminate mortar leaks.

3.03 INSTALLATION:

- A. Embedded Items:
 - 1. General: Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of the items to be attached thereto.
 - 2. Edge Forms and Screeds: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in the finished slab surface. Provide and secure units to support types of screeds required.
- B. Shores and Supports: Comply with ACI 347 for shoring construction, and as herein specified. Submit a shore removal and re-shoring schedule and drawings for the DNR Construction Inspector review before proceeding with this work. Do not proceed until schedule and drawings have been reviewed.

3.04 APPLICATION:

- A. Form Coating: Coat form contact surfaces with form-coating compound before reinforcement is placed. Do not allow excess form coating material to accumulate in the forms or to come in contact with surfaces which will be bonded to fresh concrete. Apply in compliance with manufacturer's instructions.

3.05 FIELD QUALITY CONTROL:

- A. Inspection: Concrete shall not be placed in forms until inspected by DNR Construction Inspector and permission is given to start placing concrete.

3.06 CLEANING:

- A. General: Formwork not supporting concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 10 degrees C (50 degrees F) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operation, and provided that curing and protection operations are maintained.
- B. Formwork: Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements may not be removed in less than 14 days, and not until concrete has attained design minimum 28-day compressive strength. Determine potential compressive strength

of in-place concrete by testing field-cured specimens representative of the concrete location or members, as specified in other sections.

- C. Form-Facing Material: Form-facing material may be removed four days after placement, only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.
- D. Reuse of Forms: Clean and repair surfaces of forms to be reused in the work. Split, frayed, delaminated or otherwise damaged form-facing material will not be acceptable. Apply new form-coating compound material to concrete contact surfaces as specified for new formwork. When forms are reused for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets.

END OF SECTION 03100

SECTION 03200
CONCRETE REINFORCING

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: All reinforcing steel, steel mesh, and accessories and the installation of these items for all concrete reinforcement for this project.
- B. Related Sections: Drawings and General Provisions of the contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 03100 Concrete Forming and Accessories

Section 03300 Cast-In-Place Concrete

1.02 REFERENCES:

- A. Comply with all applicable provisions of the following standards:
 - 1. CRSI "Manual of Standard Practice"
 - 2. ACI 315 "Details and Detailing of Concrete Reinforcement"
 - 3. ACI 318 "Building Code Requirements for Reinforced Concrete"
 - 4. ASTM A82 "Standard Specifications for Cold Drawn Steel Wire For Concrete Reinforcement"
 - 5. ASTM A185 "Standard Specifications for Welded Steel Wire Fabric For Concrete Reinforcement"
 - 6. ASTM A615 "Standard Specifications for Deformed and Plain Billet-Steel Bars For Concrete Reinforcement"

1.03 SUBMITTALS:

- A. Shop Drawings: Submit complete shop drawings of all materials proposed to be furnished and installed under this section in accordance with ACI "Manual of Standard Practice for Detailing Concrete Structure," ACI 315. Show:
 - 1. Bar schedule, stirrup spacing, diagrams of bent bars, and arrangements and assemblies.
 - 2. Review shop drawings requirements with DNR Construction Inspector before ordering shop drawings.
- B. Mill Certificates: Submit steel producer's certificates of mill analysis, tensile and bend tests for reinforcing steel.
 - 1. Submit certificates showing conformity with these requirements and those of ASTM A615 to the Architect for each melt.

1.04 DELIVERY, STORAGE AND HANDLING:

- A. Delivery: Deliver reinforcement to the job site bundled, tagged, and marked.
 - 1. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.
- B. Storage: Store reinforcement at the job site in a manner to prevent damage and accumulation of dirt and excessive rust.

PART 2 - PRODUCTS

2.01 MATERIALS:

- A. Steel and Wire Reinforcement:
 - 1. Provide reinforcing steel consisting of deformed bars of the sizes shown on the Drawings.
 - 2. Provide steel conforming to ASTM A615 Grade 60 with deformation conforming to ASTM A305.
 - 3. Provide wire reinforcement conforming to ASTM A82 and welded wire fabric conforming to ASTM A185.
- B. Wire Reinforcement: Provide in accordance with ASTM A82.
- C. Welded Wire Fabric: Provide in accordance with ASTM A185.
 - 1. Unless otherwise noted elsewhere, reinforce all slabs with 6 x 6 - W 1.4 x W 1.4.
- D. Tie Wire: No. 16 double annealed iron wire.
- E. Accessories: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcement in place:
 - 1. Use wire bar-type supports complying with CRSI recommendations, unless otherwise indicated.
 - a. Do not use wood, brick and other such unacceptable materials.
 - 2. For slabs on grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
 - 3. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with either hot-dip galvanized or plastic protected legs.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Examine the substrate, formwork, and the conditions under which concrete reinforcement is to be placed, and correct conditions which would prevent proper and timely completion of the work.
- B. Do not proceed with the work until satisfactory conditions have been corrected.

3.02 INSTALLATION:

- A. General:
 - 1. Comply with the specified standards for details and methods of reinforcement placement and supports, and as herein specified.
 - 2. Clean reinforcement to remove loose rust and mill scale, earth, and other materials which reduce or destroy bond with concrete.
 - 3. Position, support, and secure reinforcement against displacement by formwork, construction, or concrete placement operations.
 - 4. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required.
 - 5. Place reinforcement to obtain the minimum coverage for concrete protection.

6. Arrange, space, and securely tie bars and bar supports together with 16 gauge wire to hold reinforcement accurately in position during concrete placement operations.
7. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.
8. Install welded wire fabric in lengths as long as practicable.
9. Lap adjoining pieces at least one full mesh.
10. Provide sufficient numbers of supports and of strength to carry reinforcement.
11. Do not place reinforcing bars more than 2" beyond the last leg of any continuous bar support.
12. Do not use supports as bases for runways for concrete conveying equipment and similar construction loads.
13. Splices: Provide standard reinforcement splices by lapping ends, placing bars in contact, and tightly wire tying.
 - a. Lap horizontal splices a minimum of 18".
 - b. Lap Vertical splices a minimum of 28".
 - c. Place bars in contact and tightly tie wire.

END OF SECTION 032000

PART 1 - GENERAL

1.01 SUMMARY:

- A. Section Includes: Provisions for all labor and materials required to construct all walls, footings, piers and slabs, and all other work or items classified as cast-in-place concrete.
 - 1. All concrete foundations and slabs as shown on the project plan, floor plans and building sections, as well as all other concrete not specified elsewhere, are classified as cast-in-place concrete.
- B. Related Sections: Drawings and General Provisions of the Contract, including the General Covenants and Provisions, Supplementary Covenants and Provisions and General Requirements as well as, but not necessarily limited to, the following:

Section 03100 - Concrete Formwork
Section 03200 - Concrete Reinforcement

1.02 REFERENCES:

- A. Codes and Standards: Comply with provisions of following codes, specifications and standards except where more stringent requirements are shown or specified.
 - 1. Uniform Building Code, U.B.C., 1985 edition.
 - 2. American Concrete Institute (ACI).
 - a. Manual of Concrete Practice.
 - b. ACI 301 - Specifications for Structural Concrete for Buildings.
 - c. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete.
 - d. ACI 305 - Hot Weather Concreting.
 - e. ACI 306 - Cold Weather Concreting.
 - f. ACI 308 - Standard Practice for Curing Concrete.
 - g. ACI 318 - Building Code Requirements for Reinforced Concrete.
 - 3. American Society for Testing of Materials (ASTM).
 - a. ASTM C33 - Standard specification for concrete aggregates.

- b. ASTM C31 - Making and curing compressive and flexural strength test specimens in the field.
 - c. ASTM C94 - Standard specification for ready-mixed concrete.
 - d. ASTM C138 - Test for unit weight, yield and air content of concrete.
 - e. ASTM C143 - Test for slump test of portland cement concrete.
 - f. ASTM C150 - Standard specification for portland cement.
 - g. ASTM C260 - Standard specification for air-entraining admixture for concrete.
 - h. ASTM C309 - Standard specification for liquid membrane-forming compounds for curing concrete.
 - i. ASTM C494 - Standard specification for chemical admixtures for concrete.
 - j. ASTM D994 - Standard specification for pre-formed expansion joint filler for concrete.
 - k. ASTM D1850 - Standard specification for concrete joint sealer, cold application type.
- 4. Concrete Reinforcing Steel Institute (CRSI).
 - a. Manual of Standard Practice.
 - 5. State of Iowa Building Code, latest edition.

1.03 SUBMITTALS:

- A. Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, accessories, admixtures, patching compounds, water stops, joint systems, curing compounds, dry-shake finish materials, and others as required by Project Engineer.
- B. Samples: Submit samples of materials specified as requested by Project Engineer including names, sources and descriptions.
- C. Quality Control Submittals:
 - 1. Design Data: Submit data on proposed design mixes when trial batch method is used.
 - 2. Test Reports: Employ, when necessary, at Contractor's expense, a testing laboratory acceptable to the Project Engineer to perform material evaluation tests and submit reports.
 - 3. Material Certificates: Provide materials certificates in lieu of materials laboratory test reports when permitted by Project Engineer. Material certificates shall be signed by

Manufacturer and Contractor certifying that each material item complies with or exceeds specified requirements.

1.04 QUALITY ASSURANCE:

A. Qualifications:

1. During the progress of installation of the work of this section, provide at least one worker who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills, and who shall be present at the site and shall direct all work performed under this section.
2. Use adequate numbers of skilled workers to ensure installation in strict accordance with the approved design.

1.05 DELIVERY, STORAGE, AND HANDLING:

- A Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the work and materials of all other trades.
- B. Replacement: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Project Engineer and at no additional cost to the Owner.

1.06 PROJECT/SITE CONDITIONS:

- A. Environmental Requirements: Weather conditions shall be observed. No work shall be attempted in frozen conditions without written approval from the DNR Construction Inspector.
- B. Existing Conditions: Review job conditions prior to commencing work. Bring any discrepancies between existing work and the Drawings and Specifications to the attention of the Project Engineer/DNR Construction Inspector.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Subject to compliance with requirements, products from the following manufacturers can be incorporated into the work of this section.
1. Euclid Chemical Co., 19218 Redwood Road, Cleveland, Ohio 44110.
 2. Master Builders Co., Ltd., 79 Kincort Street, Toronto, Ontario M6M3E4.
 3. Sika Chemical Corporation, P. O. Box 297, Lyndhurst, New Jersey 07071.
 4. Chem-Master Corporation, 477 Industrial Parkway, Chagrin Falls, Ohio 44022.
 5. W. R. Grace and Co., 62 Wittemore Avenue, Cambridge, Massachusetts 02140.
 6. W. R. Meadows, Inc., P. O. Box 543, Elgin, Illinois 60120.

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7. Protex Industries, Inc., 1331 West Evans Avenue, Denver, Colorado 80223.
8. Sonneborn Building Products, 7711 Computer Avenue, Minneapolis, Minnesota 55435.
9. Antihydro Co., 265 Badger Avenue, Newark, New Jersey 07108.
10. L & M Construction Chemicals, Inc., 8316 Blondo Street, Omaha, Nebraska 68134.
11. Glifford-Hill and Co., Inc., Woodland Green, Charlotte, North Carolina 28210.
12. The Celotex Corporation, 1500 North Dale Mabry Highway, Tampa, Florida 33607.
13. J & P Petroleum Products, Tex-Mastic Construction Materials, 2715 South Westmoreland, P. O. Box 4206, Dallas, Texas 75208.

2.02 MATERIALS:

- A. Portland Cement: ANSI/ASTM C 150, Type I or Type III, high early-strength cements, unless otherwise acceptable to Project Engineer.
- B. Normal Weight Aggregates: ANSI/ASTM C 33, and as herein specified.
 1. Coarse aggregate for concrete shall consist of gravel or crushed stone particles, from a source approved by Iowa D.O.T., or combinations of these materials. The aggregate shall meet these requirements:
 - a. Abrasion loss: The percent of wear, determined in accordance with AASHTO T 96, Grading A or B, shall not exceed 35 for gravel and 50 for other crushed stone.
 - b. Durability: Coarse aggregate durability shall be a minimum of Class 1. Aggregate of Class 2 or Class 3 durability may be furnished by the Contractor, with the Project Engineer's approval, and at no extra cost to the Owner.
 - c. Gradation: Coarse aggregate shall meet requirements of D.O.T. Section 4109, Gradation No. 3, 4, or 5.
 - d. Maximum size of coarse aggregate: Not more than three-fourths minimum clear spacing between reinforcing bars and not more than one-fifth of smallest dimension of slab or member for which concrete is being used. Coarse aggregate for un-reinforced slabs maximum size one-third of slab thickness.
 2. Fine aggregate for concrete shall consist of clean, hard, durable mineral aggregate particles free from injurious amounts of silt, shale, coal, organic matter, or other deleterious material, and shall be from a source approved by Iowa D.O.T. The aggregate shall meet these requirements:
 - a. Gradation: Fine aggregate shall meet the requirements of D.O.T. Section 4109 for Gradation No. 1.

- C. Water: Water for concrete shall be clean, potable and free from injurious amounts of foreign matter.
- D. Water-Reducing Admixtures: ANSI/ASTM, C 494, Type A and contain not more than one percent (1%) chloride ions.

"Eucon WR-74;" Euclid Chemical Co.
"Pozzolith 322N;" Master Builders.
"Plastocrete 160;" Sika Chemical Corp.
"Chemtard;" Chem-Masters Corp. or approved equal

- E. Air-Entraining Admixture: ANSI/ASTM C 260, added to mixer in lieu of air-entrained cement.

"Darex (AEA);" W. R. Grace Co.
"Ad-Aire;" Carter-Waters Corp.
"Protex AES;" Protex Industries, Inc.
"Seal-Tight;" W. R. Meadows, Inc. or approved equal

- F. Liquid Membrane-Forming Curing Compound: Liquid type membrane-forming curing compound complying with ANSI/ASTM C 309, Type I, Class A unless other type acceptable to Project Engineer.

"Masterseal;" Master Builders.
"A-H 3 Way;" Sealer' Anti-Hydro Waterproofing Co.
"Ecocure;" Euclid Chemical Co.
"Clear Seal;" W. R. Grace.
"Kure-N-Seal;" Sonneborn-Contech.
"Polyclear;" Upco Chemical/USM Corp.
"L & M Cure;" L & M Construction Materials.
"LR-151;" Protex Industries.
"Hardtop;" Gifford - Hill. or approved equal

- 1. Curing compound shall form a continuous unbroken membrane which shall adhere to moist concrete and which will not disintegrate, check or peel from the surface, nor show signs of such deterioration within 30 days after application under actual working conditions. The compound shall be sufficiently transparent and free from color so there will be no permanent change in the color of the concrete. The compound shall contain, however, a temporary dye of sufficient color to make the membrane clearly visible for a period of at least four hours after application.

2.03 EQUIPMENT:

- A. Batching, Mixing, and Delivery Equipment: Use transit-mixed concrete from approved batching and mixing plant. Batch, mix, and transport concrete to site in accordance with ANSI/ASTM 94.
- B. When air temperature is between 85°F. (30°C) and 90°F. (32°C), reduce mixing and delivery time from 1 1/2 hours to 75 minutes; and when air temperature is above 90°F. (32°C), reduce mixing and delivery time to 60 minutes.

2.04 ACCESSORIES:

- A. Pre-formed Joint Filler: ASTM D 994 and as herein specified.
1. Pre-formed non-extruding resilient material, one-half (1/2) inch wide and of the depth required to bring surface to within one-half (1/2) inch of finished surface.
 2. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to, the following:

"Flexcell;" Celotex Corporation.
"Sealtight;" W. R. Meadows, Inc.
"Tex Mastic;" J & P Petroleum Products. or approved equal
- B. Joint Sealer: ASTM D-1850 Concrete Joint Sealer, cold-application type.
- C. Vapor Barrier: Under slabs on ground, 4 mil polyethylene film, when required by the Drawings.
- D. Storage: Store all cement materials in weather-tight enclosure, clear of ground, and protected from weather with suitable covering.
- E. Embedded Items: Verify and coordinate embedded items furnished by other trades.
- F. Keyways and/or Expansion Tubes: IDOT Section 4191, Series of 1997, or as required by the Drawings.
- G. Admixtures: Use air-entraining admixture in exterior exposed concrete, unless otherwise indicated as determined by ANSI/ASTM C 138. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content within following limits:
1. Concrete structures and slabs exposed to freezing and thawing or subjected to hydraulic pressure:

Maximum Size Aggregate	Amount of Air (%)
1 1/2" or 2"	5% + 1%
3/4" or 1"	6% + 1%
3/8" or 1/2"	7 1/2% + 1%

2.05 MIXES:

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Project Engineer for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Project Engineer.
- B. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:

1. 4,000 psi 28-day compressive strength; 624 lbs. cement per cubic yard minimum; W/C ratio, 0.488 maximum.
- C. Consistency: The quantity of water required for the proper consistency of concrete shall be determined by the slump test in accordance with ANSI/ASTM C 143. Slump allowances shall be as follows:
 1. Vertical Wall Sections, Columns -- Maximum slump, 4 inches, plus or minus one inch tolerance.
 2. Footings, Beams, Slabs -- Maximum slump, 3 inches, plus or minus one inch tolerance.

PART 3 - EXECUTION

3.01 EXAMINATION:

- A. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.
- B. Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

3.02 PREPARATION:

- A. Drain and pump all water from excavations, forms, and any locations where concrete is to be placed. Bottom of excavations shall be undisturbed earth free of frost or debris, level and compacted. Do not place any concrete until the DNR Construction Inspector has inspected and approved forms and soil conditions, and until reinforcing, sleeves, and embedded items have been placed. Clean all dirt and debris from transporting equipment. Clean reinforcement of all foreign matter. Clean forms and oil or wet (except in freezing conditions) surfaces. Compact, level, and dampen base fill material under slabs on grade. Prior to placing concrete, install polyethylene vapor barrier under interior slabs. Do not puncture or otherwise damage vapor barrier or membrane waterproofing.
- B. Transport concrete to prevent separation of materials in accordance with ACI practices. Do not add water to concrete during transporting. Handle from mixer to point of placement with carts, buggies, or conveyors. Do not dump concrete from mixer or from transporting equipment with a free fall of more than three feet. Deposit concrete as nearly to its final position as possible. Clean transporting equipment at frequent intervals during placement. Do not use partially hardened or contaminated concrete.

3.03 PLACEMENT OF CONCRETE:

- A. Place concrete in accordance with ACI 304 "Recommended practice for measuring, mixing, transporting and placing concrete" and as herein specified.
- B. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness.

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If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation.

- C. Place concrete continuously so that fresh concrete is not placed against hardened concrete to form seams or planes of weakness. Work concrete into corners and around reinforcement. Machine vibrate sufficiently to insure thorough compaction and complete embedment of reinforcing. Stop placement at point of no shear, or where directed, and erect tight, plumb dams through forms. Place concrete between construction joints in one continuous operation. Locate construction joints in slabs under partitions. Brush on neat cement when pouring against hardened concrete.
- D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
 - 1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.
 - 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least six (6) inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
- E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.
 - 1. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Bring slab surfaces to correct level with straight edge and strike off. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
 - 3. Maintain reinforcing in proper position during concrete placement operations.
- F. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306, "Cold Weather Concreting," and as herein specified.
 - 1. When air temperature has fallen to or is expected to fall below 40°F. (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 40°F. (4°C), and not more than 80°F. (27°C) at point of placement, and maintain minimum temperature over the entire work for no less than 72 hours.
 - a. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

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- b. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- G. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305, "Hot Weather Concreting," and as herein specified:
 - 1. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90°F. (32°C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated in total amount of mixing water.
 - 2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
 - 3. Wet forms thoroughly before placing concrete.
 - 4. Use water-reducing retarding admixture (Type A) when required by high temperatures, low humidity, or other adverse placing conditions.
- H. Construction Joints: Contractor to submit placement and type of construction joints to Project Engineer for review prior to placement of any concrete on the project.
- I. Expansion Joints: Install expansion joint filler where interior slabs abut exterior walls, interior bearing walls and columns, at perimeter of concrete equipment pads, and other necessary locations as determined by the inspector. Omit expansion joint filler and install 15 lb. felt, centered below doors, to break bond at exterior doors with concrete platforms, unless otherwise shown on the Drawings.
- J. Control Joints: Cut control joints in all exposed concrete slabs on grade, as directed by the Inspector. Locate in a uniform pattern throughout parking areas. Verify location and cut to depth of one-sixth (1/6) of slab thickness with minimum of three-fourths (3/4) inch depth. Cut with carborundum saw, approximately six (6) to twenty-four (24) hours after placing concrete and when a minimum amount of raveling occurs in concrete.
 - 1. On exterior walks, score with one-fourth inch by one inch (1/4" x 1") deep control joints. Use straight edge guide when scoring joints. Where required depth of control joint cannot be made by scoring, cut joints with carborundum saw.

3.04 CONCRETE FINISHING:

- A. Finish on Formed Surfaces: All finished or formed surfaces shall conform accurately to the shape, alignment, grades and sections as shown on the Drawings. Surfaces shall be free from fins, bulges, ridges, offsets, honeycombing or roughness, and shall present a finished, continuous, hard surface. All sharp angles, where required, shall be rounded or beveled.
 - 1. Rough Form Finish:

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- a. Provide as-cast rough form finish to formed concrete surfaces that are to be concealed in the finish work or by any other construction.
- b. Standard rough form finish shall be the concrete surface having the texture imparted by the form facing material used, with tie holes and defective areas repaired and patched, and all fins and other projections exceeding one-fourth inch (1/4") in height rubbed down or chipped off.

2. Smooth Form Finish:

- a. Provide as-cast smooth form finish for formed concrete surfaces that are to be exposed to view, or that are to be covered with a coating material other than cement plaster applied directly to the concrete.
- b. Produce smooth form finish by selecting form material to impart a smooth, hard, uniform texture and arranging them orderly and symmetrically with a minimum of seams.
- c. Repair and patch defective areas with all fins and other projections completely removed and smoothed.

B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike off smooth and finish with a smooth troweled finish.

C. Slab and Floor Finish: For all floor and flat roof surfaces and all exterior concrete floor, sidewalk and flat slab surfaces, the Contractor shall be particularly careful to provide an adequate slope to the drains or to suitable points of disposal. The direction of slope and the amount of crowning generally are shown on the Drawings; otherwise, they shall be as prescribed by the Project Engineer or the DNR Construction Inspector. Dry topping will not be allowed on any of the finishes.

1. Scratch Finish:

- a. Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile and other bonded applied cementitious-finish flooring material.
- b. After placing slabs, plane the surface to a tolerance not exceeding one-fourth inch (1/4") in twenty-four inches (24") when tested with a straight edge.
- c. Slope surfaces uniformly to drains where required.
- d. After leveling, roughen the surface before the final set by using stiff broom brush or rake.

2. Float Finish:
 - a. Apply float finish to monolithic slab surfaces that are to receive trowel finish and other finishes hereinafter specified, and to slab surfaces which are to be covered with insulation, and as otherwise shown on the Drawings or in the schedules.
 - b. After placing concrete slabs, do not work the surface further until ready for floating.
 - c. Begin floating when the surface water has disappeared and when the concrete has stiffened sufficiently to permit operation of a power-driven float, hand float, or both.
 - d. Consolidate the surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units.
 - e. Check and level the surface plane to a tolerance not exceeding one-fourth inch (1/4") in ten feet (10'-0") when tested with a ten-foot (10'-0") straight edge placed on the surface at not less than two different angles.
 - f. Cut down high spots and fill low spots.
 - g. Uniformly slope surfaces to drains where required.
 - h. Immediately after leveling, re-float the surface to a uniform, smooth, granular texture.
3. Trowel Finish:
 - a. Apply trowel finish to monolithic slab surfaces that are to be exposed to view, unless otherwise shown, and to slab surfaces that are to be covered with resilient flooring, carpeting, paint, or other thin-film finish coating system.
 - b. After floating, begin the first trowel finish operation using a power-driven trowel. Begin final troweling when the surface produces a ringing sound as the trowel is moved over the surface.
 - c. Consolidate the concrete surface by the final hand troweling operation, free from trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding one-eighth inch (1/8") in ten feet (10'-0") when tested with a ten-foot (10'-0") straight edge.
 - d. Grind smooth those surface defects which would telegraph through applied floor covering system.
4. Coordinate the required finish with the Project Engineer or DNR Construction Inspector prior to the application.

3.05 CONCRETE CURING:

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
 - 1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than seven (7) days.
 - 2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least seven (7) days in accordance with ACI 308, "Standard Practice for Curing Concrete." Avoid rapid drying at end of final curing period.
- B. Curing Method: Perform curing of concrete by moist curing, by moisture-retaining cover curing, by curing compound, and by combinations thereof as herein specified.
 - 1. Provide moisture curing by the following methods:
 - a. Keep concrete surface continuously wet by covering with water.
 - b. Continuous water-fog spray.
 - c. Covering concrete surface with specified absorbent cover, thoroughly saturating cover with water and keeping continuously wet. Place absorbent cover to provide coverage of concrete surfaces and edges, with four-inch (4") lap over adjacent absorbent cover.
 - 2. Provide moisture-cover curing as follows: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least three inches (3") and sealed by waterproof tape or adhesive. Immediately repair any holes and tears during curing period using cover material and waterproof tape.
 - 3. Provide curing compounds for slabs as follows: Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within two (2) hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Re-coat areas subjected to heavy rainfall within three (3) hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - 4. Do not use membrane curing compounds on surfaces which are to be covered with coating material applied directly to concrete, liquid floor hardener, waterproofing, dampproofing, membrane roofing, flooring, painting, and other coatings and finish materials, unless otherwise acceptable to the coating manufacturer.

3.06 MISCELLANEOUS CONCRETE ITEMS:

- A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and

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cure concrete as herein specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

- B. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on the Drawings or required for the machine and equipment actually furnished. Set anchor bolts for machines and equipment to template, at correct elevations, complying with certified diagrams or templates of the manufacturer furnishing the machines and equipment. Provide isolation joints surrounding bases where indicated or required.

3.07 FIELD QUALITY CONTROL:

- A. Test of Materials and Installed Work: Materials and installed work may require testing and re-testing, as directed by Project Engineer, at any time during progress of work. Allow free access to material stockpiles and facilities. Tests, not specifically indicated to be done at Owner's expense, including re-testing of rejected materials and installed work, shall be done at Contractor's expense.
 - 1. Slump Tests: Take one slump test for each 10 cubic yards, or as directed by Project Engineer, of concrete placed at one operation in accordance with ASTM C 143. Keep job record of test results and location.
 - 2. Control Tests: During placement of concrete, take three standard 6" test cylinders in accordance with ACI 318-63 and ASTM C 31 for each type of concrete used. Test one at seven (7) days and one at twenty-eight (28) days. Take one set for every 20 cubic yards and any fraction with a minimum of one set of three cylinders for each day's pour. Tag cylinders to show date and location of test cylinder. Have compressive strength tests made by independent laboratory and results sent directly to Project Engineer. Hold remaining cylinders in case of breakage. Should retention at job site delay testing beyond seven (7) days, fourteen (14) day test is acceptable. Keep test cylinders shaded and damp until sent to laboratory.

3.08 REMEDIAL WORK:

- A. General: Reinforce or replace deficient work as directed by the Project Engineer or DNR Construction Inspector and at no additional cost to the Owner.
- B. Patching: Repair defective areas and fill form-tie holes and similar defects in accordance with ACI 301. Where, in the opinion of the DNR Construction Inspector, surface defects such as honeycomb occur, repair the defective areas as directed by the Project Engineer or DNR Construction Inspector.

3.09 PROTECTION OF CONCRETE CONSTRUCTION:

- A. All surfaces shall be protected against injury. During the first 72 hours after placing the concrete, any wheeling, working or walking on the concrete shall not be permitted. All slabs subject to wear shall be covered with a layer of sand or other suitable material as soon as the concrete has set. Sisalcraft paper or other similar tough waterproof paper may also be used, provided all joints between adjacent strips of paper are carefully sealed. This does not alter the requirements for proper curing.

- B. Do not place concrete slabs or top surfaces of walls during rain unless acceptable protective shelter is provided; and during such weather, all concrete placed within the preceding 12 hours shall be protected with waterproof canvas or other suitable coverings. These shall be provided and kept ready at hand.
- C. All concrete construction shall be protected from excessive loading. Installation of mechanical and electrical equipment shall be accomplished by employing shores, bearing plates, frames, cranes and temporary beams.

END OF SECTION 03300